

A photograph of a baby crawling on a computer keyboard, with the baby's hands and feet visible on the keys. The image is the background for the entire cover.

# The Computer PAPER

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# The Computer PAPER

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BC EDITION  
JANUARY 2000



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**Are shocks**

I just wanted to send TCP a short note of appreciation. Over the past few years, I logged casually through your magazine whenever I spotted it. But recently, while shopping for a computer for my retired dad (a 600-time computer user), I found TCP to be an invaluable resource. Your issue re-upgrades (October 1999) provided me with more information than six entire years' worth of the big glossy

mag. In fact, even I was reluctant to read it, because of its content that was not technically relevant to information and that dig (despite that how wonderful the manufacturers' Web page looks).

Mark Allen

**Canadian digitalists' info sought**

I have been researching digital cameras for about two months now. I find it impossible

to get any Canadian info on cameras. Your magazine has some ads with Web sites, but when going to those sites, you still can't find any cameras or prices in Canadian dollars. Perhaps you could add a section on new cameras and new hardware for consumers. It would be nice to see Canadian reviews and what those cameras cost in Canada.

Nancy

**TCP explains: As it happens,** TCP Lab Tests reviews of more than 20 digital cameras appear in this month's issue. There are some other sources of information. If you live in a major area, you might find that the larger photography stores have started to sell digital cameras alongside their traditional film offerings, where also you could even purchase them, and consumer electronics stores are stocking the most popular brands of digital cameras, along with accessories like rechargeable batteries and removable memory modules.

**Throwing more light on projectors**

I am frustrated by the number of LCD projectors recently available, and have found some good information regarding them on your Web site. However to simplify matters, here you can post about a comparative review on them in your paper! Any help would be appreciated. Thanks.

Scott Jones

**TCP explains:** The best reviews of LCD projectors was in our July 1999 issue. There are a few points you should keep in mind when choosing one of these devices. The first distinction is in the image-forming system used in a projector.

Presently, there are three main types: LCD, reflective LCD and DLP. Since LCD projectors use a single LCD, but there are few cameras, with these LCD units (one such for red, green and blue) glowing directly beneath the image is better.

Reflective LCD is a newer technology. It even brought it that it allows designers to make smaller, lighter projectors. DLP stands for digital light processing, and DLP-based projectors are a step ahead in DMD (digital micromirror device) to form the image. DLP devices are generally brighter, but some argue that the colors aren't as saturated as colors can be in LCD projectors.

The other important specification is light output, which is usually stated in ANSI lumens. The projector manufacturers' ANSI lumens are generally adequate. For projecting in large halls or conference ballrooms, you would need a projector with at least 1,000 ANSI lumens.

**Empire Areas includes Microsoft Works**

The Lab Test in the December issue ("Under the test, TCP Lab looks at systems for family computing") mistakenly stated that the Empire Areas system came with an additional web page. In fact, the system came with Microsoft Works bundle.

**TCP survey winner**

In the summer of 2000, TCP conducted its annual readership survey, and all those who completed a questionnaire became eligible for a new book computer from Apple Computers.

We'd like to thank everyone who participated in the survey. The results will help us direct TCP's direction in the future, including your best source for Canadian computer and technology information.

The winner of TCP's readership survey drew for a notebook computer in June Washington of Empress, Ont.

Congratulations Mr. Washington!

**Find an organization's site quickly**

IBM Network Solutions has developed its new site search engine. Don't Go to find anyone to find almost any organization's Web site with a click, say, on [www.ibm.com](http://www.ibm.com). The site, which contains more than two million listings, will soon offer a similar facility for finding Canadian Web sites.

<http://www.ibm.com/networking>



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# AZURA

# WHAT'S NEW

## Password tracker doesn't collect info

A Web-based password management application lets users avoid a risky rule with out collecting personal data, according to its developer.

The Passworder service (<http://www.passworder.com>) keeps track of multiple passwords without offering single sign-on privileges for free. Site subscription is permitted for use in reducing advertising or for other Web marketing applications, the company told.

"Passworder will never accept advertising nor enter into financial agreements with other Web sites," said Paul Bennett, chief executive of ID Arts, the company that developed Passworder. "There's enough 'bait' on the Internet already. Users are looking for simple, secure Internet tools."

Based on a service developed for the Israeli government, Passworder doesn't use a virtual addressbook interface, according to ID Arts. Instead of entering passwords, users have to remember five "pass faces" when they sign up. To access the service after that, users have to identify the five faces groups of other "faces."

The service makes most users store a few additional keys, since "memory can remember a list," the company said.

Founded in 1997, ID Arts is based in Tel Aviv, Israel.   
—[comdex@mp.com](mailto:comdex@mp.com)



## New Volvo gets mobile office features

Owners of the Volvo new S40E model have a new option to consider alongside the typical add-ons like CD player, sunroof and automatic transmission—connected to an outside office. Customers can have a mobile phone in the driver's position as well as a mobile pager (as installed in the rear seat area).



The mobile fax, the Pocus Pilot, is optional to work with cellular services and can send and receive regular faxes, as well as print out SMS (short message service) text messages and copy documents. It includes a 50-sheet fax and printer and a PCMCIA Type II interface for connection to a notebook PC. It also has memory storage that allows documents to be scanned and stored into memory for later transmission, as well as an on-board copier/print facility. The fax will let the PCMCIA interface send and Web-surfing facilities using paper in the scanning mechanism.

—Hiroshi



## Teach an old mouse new tricks

Although Ottawa-based Toggle Software Inc. sent a copy of its ToggleMouse utility to TCP about eight months ago, it wasn't until last November that the utility landed in our files: a model notebook PC to help solve a pen-dilemma problem.

The notebook is, essentially, one a touchpad to control the cursor. But the touchpad—located on the palm rest area at front of the keyboard—was used to control scrolling around the corners of thumbs and palms are not held high. The sample solution was to hook up a PS/2 mouse and a full-size PS/2 keyboard for using the notebook at home. The simple strategy to this solution, though, was the single PS/2 port for the notebook.

Kevin Togglehouse, I predict you've deleted that but here's offering that you may find for example, instead of the software, it may sound like a cheap alternative. But depending on how finely you configure the notebook (you can choose the number of pixels the cursor will move each time you press a number key) it is quite smooth and accurate, with the number pad. Even key acting as a mouse click.



The upside is you can use the many configurations offered by Togglehouse. It allows users of older mice to work without problems, reduce mouse movement with QuickPoint and ScrollByButtons, reduce mouse clicks with ActionPoint and IconClick, assign functions to unused mouse buttons, choose high velocity cursor and configure a mouse to it is easier for lefties to use.

Toggle says ToggleMouse offers mouse users interest of some of the new high end working and wheel mice without having to buy new hardware. The latest version, Togglehouse 4.5.2, has additional more advanced features and some fixes for application- or OS-specific problems.

Togglehouse is compatible with Windows/NT/95 and is priced at \$59.95, and can be purchased through the Toggle Web site (<http://www.toggle.com>), or ordered by phone (800-5-TOGGLE). A free 30-day trial edition can be downloaded from the Toggle site.

—Bridget Johnson

## Comdex Canada West 2000

Ask industry leaders what's hot at TCP's Toronto Fall Meeting

The Comdex Paper and ComdexComputes.com are presenting the Toronto Fall Meeting, at Comdex Canada West 2000. The conference and expo will be held at the Intercontinental Trade and Convention Centre, Jan. 19-21. The Toronto Fall Meeting runs from 10:30-1:45 p.m. on Jan. 20.

As with previous Toronto Fall Meetings, this is a great opportunity for TCP readers to interact with some of Canada's most "connected" technology experts, to discuss the latest computing topics at the edge of the marketplace.

The themes of the meeting will be networking, mobility, usability and pervasive computing. On hand for free interaction with the audience will be representatives from leading technology companies.

Co-moderating the meeting will be David Tanaka, Editor of the Comdex Paper and Jeff Evans, Editor of [www.comdex.com](http://www.comdex.com), the country's newest technology Web site.

If you have questions you'd like to ask our panel, please feel free to submit them by email to [torontofall@tcp.ca](mailto:torontofall@tcp.ca).

And when attending Comdex, be sure to stop by the TCP booth.



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# What's New

From and from page 18

## Software reads fax e-mail over phone

Gutthard has turned shipping a USB port-up chat messages to a PC with a Internet modem, then calls them up over the phone to automatically play their message back.

Richard Cooke, a spokesperson for Gutthard, said the software was developed by Intel's Genuis (http://www.intel.com) and

allows users to read their e-mail over the phone. The software is available for free but a called Mac OS X is not available.

The 2.0 beta Windows package quickly ships up and downloads a user's e-mail, placing it in the user's Internet e-mail application to read. It then delivers the message to a regular land line or a mobile phone and offers to play the message back using text-to-speech technology.

The system is billed as a way to let a user read e-mail over the phone, allowing users to check and skip messages, go back and re-read the current message. Messages can also be stored using parameters set by the user, such as only offering urgent messages for playback.

The heart of the software text-to-speech system is a speech engine from Lucent. In Hanger Gutthard says the package can be used

to improve the user with a mobile phone. It can also recognize and speak French, German, Italian or Spanish language needs, in addition to English.

The software is priced at US\$199.95. It requires Windows 95/98, a PC with 16 MB of memory, 32 MB free hard disk space, a 4x or faster CD-ROM drive, and a voice-capable (TAPI) compliant modem or ISDN broadband adapter. A demo version is available on CompuServe's Web site.

—David J. Smith

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## ADL begins big push into Canada

ADL Canada (http://www.adl.ca), a division of America Online, the world's largest Internet service provider (ISP), has announced a multi-year strategic alliance in Canada with Bell Media and UUNET Canada, Bell Service, a BCI company, has agreed to invest in ADL's service provision capabilities while UUNET is an ISP. The deal is a strategic alliance between the two companies to provide services to business customers.

ADL Canada, which is a subsidiary under the same name, has a considerable number of subscribers. ADL Canada has about 180,000 subscribers, which includes CompuServe Canada clients, which Synapse has about 400,000 subscribers. The two companies deal with the Royal Bank, which provided a substantial payment to ADL Canada for a share in ADL Canada's operations, the ISP has indicated it is looking to increase market share in Canada.

The alliance with Bell Media and UUNET will provide over three times the reach to ADL's subscribers, with local dial-up service now being offered in most major cities across Canada in 15 provinces. According to ADL Canada chief executive Stephen Korman, "By using the results of our network, coupled with the resources of our substantial advertising plan, we will be a major force in Canadian advertising to explore the unique features of the ADL Canada service, including email, Internet access, real-time content and personal content, and make a central to their everyday lives."

The enhanced service plan consists of various content areas and other new content and features for \$11.45 per month. ADL Canada also announced a reduction of more than 50 percent in advertising for its long-term service providers.

ADL Canada says it also plans to introduce a high-speed DSL service of its service, so it can compete for a share of private user market which is currently served by Synapse High-Speed, Bell Canada DSL, or the BCI/ADL cable service.

The network is currently running at 100 Mbps. ADL Canada will be able to lead in marketing from Synapse and other major Canadian ISPs, ensuring that Canadian consumers will be offered some attractive Internet service deals for the future.

—Canada.com/press.com

## Being anyone?

Big-Brain Online has opened the first online site equipment website. The site provides an extensive guide that allows users to search by performance level, budget or brand for the books, laptops and other gear they need for the coming winter season. <http://www.bigbrain.com>

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# Personal computing's recent history

In 1969, Intel, a small maker of memory chips, was approached by a Japanese company to build a chipset for an electronic calculator. Instead of supplying a set of 12 chips as the customer requested, Intel engineers proposed putting all the chips' functions on a single integrated circuit.

By Jeff Gries

Intel engineer Maurice E. Hoff designed the Intel 4004 processor that same year, which combined many circuits and functions on one piece of silicon. Once they had defined the product to the Japanese customer, Intel engineers set back and realized that they had just given away something that might be extremely valuable. As the Japanese company was in some economic difficulties, Intel engineers to keep back all the rights to the 4004 chip and the integrated circuit concept, for the sum of \$60,000.

## Computing goes personal

Before then, upon the integrated circuit as a device, there was no other business of building computers. Intel management had the thought to see that the integrated circuit, the central processing unit for a personal office use of computing devices should become the focus of the company's efforts. In that order, Intel developed the 8008, then the 8080 chips, just as Intel set the IBM to which company called MITS, which wanted to make do it personal computer for its holdings.

Two other golf balls named Bill Gates and Paul Allen were going for the MITS Altair 8800 microcomputer, which had been launched in 1975. Also knowing the potential of personal computing, Gates and Allen started a company called Microsoft to supply software to the fledgling microcomputer market.

Around the same time, two other kids in California were calling "Hot Rod" devices to draw more to their computer system. These two producers, Steve Jobs and Steve Wozniak, got out of their dad's house before being evicted, and started thinking to build a personal computer system, which they called the Apple I. In April 1976, the course business went on sale in electronic kits. Steve Jobs, with the slogan, "Here we are Apple!" The rest of the world in history. Demand for the course books was so strong that Jobs and Wozniak received a fully assembled personal computer system, the Apple II. In 1978, they went into the store to meet Apple's headquarters from the garage to a real office.

Once a surprisingly vigorous market for personal computers started, many more people jumped into the PC manufacturing game. Various bands of Commodore Business Machines finally overtook a IBM for computers before releasing the Personal Electronic Computer (PET) PC, followed by the VIC 20 and the Commodore 64. Your Instruments developed the TI TI and Study Reader Series the TRS-80 PC, and a variety of other companies from Kaypro, Amiga, Commodore, Gates, and others appeared at least briefly on the scene.

By the end of the 1980s, it was clear that the personal computing market was a viable



Intel engineer Maurice E. Hoff and the 4004—the first processor to combine many circuits and functions on one piece of silicon.

one, and the attached IBM's interest. Initially, Intel, which then might be a market for Intel 100,000 units in 1980. IBM released its first personal computer based on a licensed version of Intel's 8088 DOS operating system, and in Intel 8088 processor the IBM PC, the blue chip stamp of approval to the PC market.

After providing a quasi-standard for the personal computer industry ("IBM compatible") without owning either the operating system (Microsoft DOS) or the CPU (Intel 8088, 8086, 8088, etc.) IBM ultimately made the IBM-compatible PC a viable standard. Personal computer company which had been kept of controlling. Hundreds of IBM-compatible PC makers jumped into the market, and fairly quickly, a few major vendors including Compaq, Hewlett-Packard, Packard Bell, Dell and Gateway achieved the status of brand names.

## The golden age of the PC

Between the launch of the IBM PC in 1981, and the rise of the World Wide Web in about 1990, was a period of happy chaos in the PC market. In spite of the simple fact that the Apple Macintosh first released in 1978 was markedly superior to the PC, Apple's con-

sumer was completely over manufacturing. Mac-compatible computers meant that all the other PC makers to the world had to make something else, and for most of them, IBM-compatible was the only game in town.

One of the worst things about the PC was that there really were no firm standards for basic items like graphics, sound, peripheral devices, networking, or telecommunications. Adding any new hardware or software to a PC was an "adventure." Companies that were prepared to get PCs for their flexibility included the kind of ownership of their fully change up through the rest of the down time, learning, maintenance and integration difficulties.

The two companies that were heading most from the PC market the two that had provided the best hardware and software components since the beginning. Microsoft and Intel. One time they used their influence, to create and not in subtle ways, to try to bring some color to the chaos of the PC. With plug and play, Microsoft made a big step forward in improving the user experience of adding new hardware to a PC. Intel, for its part, urged on-line diagnostics programs across the industry, attempting to increase efficiency and cut manufacturers' expenses the PC.

The anti-standard Intel Developer Program (IDP) currently held under a year in Palm Springs, Calif., have become closer to true "adventure" Developer Program, and Intel and thousands of other PC product developers get much better every year at getting to know the standards in advance of the release of new products. This results in a lot of PC software, a much more stable product of suppliers, and less of quality's under way.

## The future of the PC

In the age of the Internet, any device that can hook into a network is a Network Computer. This includes PCs with old gear, modems, cable modems, DSL modems, or Internet, Token Ring, or wireless networks. It also includes any other information-rich device Internet-connected, every alternative to the PC, including handheld devices, such as the Palm line from 3Com, digital still phones with fax and graphics displays, and Windows CE devices of all shapes and sizes.

According to predictions at the recent annual ICF in late August 1999, the PC industry has set itself goals for the evolution of the PC over the next five years. They include:

- **Instant on:** Going from power on to ready to use in less than 30 seconds in 2000, to in less than 10 seconds by 2005.
- **USB 2:** Fully twice faster than the original universal serial bus (USB 1.1) approaches the bandwidth (USB 2.0) data transmission speed. This means USB 2.0 may find great favor with developers for use from small business and home networking, to video cameras.
- **Miniaturization:** The goal of a PC being as small as the goal that the basic microprocessor can fit in a slot as a network device, or be embedded in a car or a home appliance. This leads to the next two of probable scenarios.
- **New form factors:** Intel designed PCs at 1997 that were built into miniature like miniature PCs, command for various device graphics cards (like Radeon PC), and installed as appliances (like the Intel PC).

## Computing to go

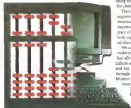
Both Microsoft and vendors, Gates, and Intel remain clear that the personal computer of the future will be portable and personal. This implies will be on computing that they do not want, either in the form of portable devices, or a portable "personal" which offers the individual in substantially connected to the network, or even connected computing device for use at times at home with.

At the Gordon Bell 99 conference held recently at Las Vegas, several computing trends were outlined. For one, all PCs used to be laptop address, now more personal users of the Internet will become more personal with the fact the Internet presents to us confounding to each user's habits. For another, the age of age.

Continued on page 22

# From Y1K to Y2K

A thousand years (give or take a few millennia) of computing



By Jeff Evans

**N**ear the end of the last for Age, someone at what is now Treason stood under the door when day night after night, looking at the moon. He or she took a piece of

sharp stone and over the period of an entire month, scratched the changing shape of the moon's phases onto a piece of bone.

Thousands of years later, this bone with its carefully engraved record of the phases of the moon was unearthed, and eventually recognized for what it was—the earliest known expression of human astronomical observation. This ancient trace of mankind's obsession with time, counting, and symbolic representation of reality speaks of one of the fundamental characteristics of the human species.

We are like apes that count. The brain is human ability to make symbols that stand for time, change, belief and numbers, has allowed us to conserve the abstract, unshared global culture we live in today. The human brain's knowledge powers, and the knowledge systems that civilizations have developed through history have been central to their success or failure. Modern computing didn't spring out of nowhere. It is just the most recent expression of this basic aspect of being human.

This article will look at how computing came into being, mostly over the last millennium, from the year 2000, to the year 2000 (although to understand this period, we will also look into your civilization).

## W's of Greek (and Babylonian) to me

In the year 1990 AD (Y1K) the most technologically advanced civilization on earth was the Muslim Arab (and) Caliphate, with its capital city at Baghdad, as well as now Iraq. At its peak, the Caliphate ruled over lands stretching from Spain to India.

Although by the year 1800 some parts of the Caliphate had become independent Islamic states, all parts of the Islamic world still shared among culture, religion, technology and intellectual links. The Muslim Arabs had not only conquered primitive peoples and brought civilization to them. On the contrary, although much of Muslim Europe was still attempting to recover from the barbarian invasions that brought about the Dark Ages, the entire the Arabs conquered, included many of the most ancient civilized cultures of the Middle East, North Africa, and Persia.

The victory of Muslim Arab civilization in the sixth and seventh centuries AD had given the Arabs ownership of the rich traditions of astronomy, mathematics and computing of the

Greeks, Romans, Babylonians, Egyptians, and Persian cultures. Under their laws, such as the Islamic Al-Khwarizmi, Arab civilization was not only a world leader in science and mathematics, but also a world leader in the development of the modern world. By the year 1800 the technologies and arts of the conquered peoples had been assimilated into a diverse, unique Arab civilization.

Continued on page 15



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**Personal computing's recent history**

*Continued from page 39*

and gadget is upon us, as the *lure horae* of the PC stands and makes new many forms, say connected gadget will be developed to meet particular needs.

Hence, as the keynote by Sony's chief once a time, the presentation seemed to consist of one amazing gadget after another being pulled out of a pocket and demonstrated. Which gadget is

which? Try them all, if they personally only cost a few dollars each. But, conditioned with the driving rate of change in computing, a question that begs to be answered is where is it all going?

**YIK and the nanospace**

In an article in the September 1999 special issue of *Scientific American*, Ray Kurzweil, one of the pioneers of human-machine interface

technology (he led the development of the first commercial compact speech recognition program), makes some startling predictions about what computing will go on to become.

Kurzweil's high, in simple computer technology has surprised so many critics over the past 30 years by increasing in power exponentially. Against expectations, it has not hit any dramatic barriers, and with the almost unlimited research resources now being devoted to

high technology, there is no reason to suspect any imminent slowdown in the development of either digital or biological technology.

Leading over the horizon, always connected, omniscient personalized PC gadgets of the next five years, Kurzweil makes some startling predictions.

First, "Sometime only in the next century, the intelligence of machines will exceed that of humans."

Second, "Once computers achieve a level of intelligence comparable to that of humans, they will necessarily overtake us. Ultimately, our biological nature will mean not only the new kind of lives our knowledge, but all of ours [humans] will end."

Third "In the future, there will no longer be a clear distinction between human and machine."

Fourth, "Humans have been evolving. We are creating intelligent entities in considerably less time than it took the evolutionary process that created us. Human intelligence—a product of evolution—has transcended it. In so, the intelligence that we are now creating in computers will come around the intelligence of its creator."

Kurzweil is maintaining a concept that has generally been property of a fringe among technology conservatives, the concept of "post humans." For simple the combination of computer technology and biotechnology extrapolated only a few generations into the future, results in a vision of a new form of life. As articulated over the last quarter century by Hans Moravec, a truly scary picture: the post-humans would have access to a world level of glances from the possibility that humans will replace themselves with kind of disembodied, perfect world forms.

According to both Kurzweil and Moravec, the nanotechnology that we are creating for the new millennium—2116—will be the control of matter and energy at the fundamental atomic particle level with the computational power to create incredibly complex simulations of reality.

At some point, when all of the post humans in a human being (genetic structure) have been identified and analyzed by some future computer, this computer could run simulations of the "person's" life as a sort of super detailed computer game.

Finally, if every atom of a human body can be described by some computational system, then presumably, that computer could recreate a perfect replica of a human consciousness inside itself.

Or could it?

Science fiction seems to be on a path to fulfill Kurzweil's predictions, because whether he is right or not, computerized great human capacities in manipulating information, memory and logic to help our species survive has begun. Computers may have not been created then the post humans believe, but nobody knows when these beings may be on our road to the future, new world of the future, will be the last thing that we see. I want to encourage you to do, rather than simply what we have to do for us.

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# Information technology timeline

900	1000	1010	1015	1020	1025	1030	1035	1040	1045	1050	1055	1060	1065	1070	1075	1080	1085	1090	1095	1100	1105	1110	1115	1120	1125	1130	1135	1140	1145	1150	1155	1160	1165	1170	1175	1180	1185	1190	1195	1200	1205	1210	1215	1220	1225	1230	1235	1240	1245	1250	1255	1260	1265	1270	1275	1280	1285	1290	1295	1300	1305	1310	1315	1320	1325	1330	1335	1340	1345	1350	1355	1360	1365	1370	1375	1380	1385	1390	1395	1400	1405	1410	1415	1420	1425	1430	1435	1440	1445	1450	1455	1460	1465	1470	1475	1480	1485	1490	1495	1500	1505	1510	1515	1520	1525	1530	1535	1540	1545	1550	1555	1560	1565	1570	1575	1580	1585	1590	1595	1600	1605	1610	1615	1620	1625	1630	1635	1640	1645	1650	1655	1660	1665	1670	1675	1680	1685	1690	1695	1700	1705	1710	1715	1720	1725	1730	1735	1740	1745	1750	1755	1760	1765	1770	1775	1780	1785	1790	1795	1800	1805	1810	1815	1820	1825	1830	1835	1840	1845	1850	1855	1860	1865	1870	1875	1880	1885	1890	1895	1900	1905	1910	1915	1920	1925	1930	1935	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065	2070	2075	2080	2085	2090	2095	2100	2105	2110	2115	2120	2125	2130	2135	2140	2145	2150	2155	2160	2165	2170	2175	2180	2185	2190	2195	2200	2205	2210	2215	2220	2225	2230	2235	2240	2245	2250	2255	2260	2265	2270	2275	2280	2285	2290	2295	2300	2305	2310	2315	2320	2325	2330	2335	2340	2345	2350	2355	2360	2365	2370	2375	2380	2385	2390	2395	2400	2405	2410	2415	2420	2425	2430	2435	2440	2445	2450	2455	2460	2465	2470	2475	2480	2485	2490	2495	2500	2505	2510	2515	2520	2525	2530	2535	2540	2545	2550	2555	2560	2565	2570	2575	2580	2585	2590	2595	2600	2605	2610	2615	2620	2625	2630	2635	2640	2645	2650	2655	2660	2665	2670	2675	2680	2685	2690	2695	2700	2705	2710	2715	2720	2725	2730	2735	2740	2745	2750	2755	2760	2765	2770	2775	2780	2785	2790	2795	2800	2805	2810	2815	2820	2825	2830	2835	2840	2845	2850	2855	2860	2865	2870	2875	2880	2885	2890	2895	2900	2905	2910	2915	2920	2925	2930	2935	2940	2945	2950	2955	2960	2965	2970	2975	2980	2985	2990	2995	3000	3005	3010	3015	3020	3025	3030	3035	3040	3045	3050	3055	3060	3065	3070	3075	3080	3085	3090	3095	3100	3105	3110	3115	3120	3125	3130	3135	3140	3145	3150	3155	3160	3165	3170	3175	3180	3185	3190	3195	3200	3205	3210	3215	3220	3225	3230	3235	3240	3245	3250	3255	3260	3265	3270	3275	3280	3285	3290	3295	3300	3305	3310	3315	3320	3325	3330	3335	3340	3345	3350	3355	3360	3365	3370	3375	3380	3385	3390	3395	3400	3405	3410	3415	3420	3425	3430	3435	3440	3445	3450	3455	3460	3465	3470	3475	3480	3485	3490	3495	3500	3505	3510	3515	3520	3525	3530	3535	3540	3545	3550	3555	3560	3565	3570	3575	3580	3585	3590	3595	3600	3605	3610	3615	3620	3625	3630	3635	3640	3645	3650	3655	3660	3665	3670	3675	3680	3685	3690	3695	3700	3705	3710	3715	3720	3725	3730	3735	3740	3745	3750	3755	3760	3765	3770	3775	3780	3785	3790	3795	3800	3805	3810	3815	3820	3825	3830	3835	3840	3845	3850	3855	3860	3865	3870	3875	3880	3885	3890	3895	3900	3905	3910	3915	3920	3925	3930	3935	3940	3945	3950	3955	3960	3965	3970	3975	3980	3985	3990	3995	4000	4005	4010	4015	4020	4025	4030	4035	4040	4045	4050	4055	4060	4065	4070	4075	4080	4085	4090	4095	4100	4105	4110	4115	4120	4125	4130	4135	4140	4145	4150	4155	4160	4165	4170	4175	4180	4185	4190	4195	4200	4205	4210	4215	4220	4225	4230	4235	4240	4245	4250	4255	4260	4265	4270	4275	4280	4285	4290	4295	4300	4305	4310	4315	4320	4325	4330	4335	4340	4345	4350	4355	4360	4365	4370	4375	4380	4385	4390	4395	4400	4405	4410	4415	4420	4425	4430	4435	4440	4445	4450	4455	4460	4465	4470	4475	4480	4485	4490	4495	4500	4505	4510	4515	4520	4525	4530	4535	4540	4545	4550	4555	4560	4565	4570	4575	4580	4585	4590	4595	4600	4605	4610	4615	4620	4625	4630	4635	4640	4645	4650	4655	4660	4665	4670	4675	4680	4685	4690	4695	4700	4705	4710	4715	4720	4725	4730	4735	4740	4745	4750	4755	4760	4765	4770	4775	4780	4785	4790	4795	4800	4805	4810	4815	4820	4825	4830	4835	4840	4845	4850	4855	4860	4865	4870	4875	4880	4885	4890	4895	4900	4905	4910	4915	4920	4925	4930	4935	4940	4945	4950	4955	4960	4965	4970	4975	4980	4985	4990	4995	5000	5005	5010	5015	5020	5025	5030	5035	5040	5045	5050	5055	5060	5065	5070	5075	5080	5085	5090	5095	5100	5105	5110	5115	5120	5125	5130	5135	5140	5145	5150	5155	5160	5165	5170	5175	5180	5185	5190	5195	5200	5205	5210	5215	5220	5225	5230	5235	5240	5245	5250	5255	5260	5265	5270	5275	5280	5285	5290	5295	5300	5305	5310	5315	5320	5325	5330	5335	5340	5345	5350	5355	5360	5365	5370	5375	5380	5385	5390	5395	5400	5405	5410	5415	5420	5425	5430	5435	5440	5445	5450	5455	5460	5465	5470	5475	5480	5485	5490	5495	5500	5505	5510	5515	5520	5525	5530	5535	5540	5545	5550	5555	5560	5565	5570	5575	5580	5585	5590	5595	5600	5605	5610	5615	5620	5625	5630	5635	5640	5645	5650	5655	5660	5665	5670	5675	5680	5685	5690	5695	5700	5705	5710	5715	5720	5725	5730	5735	5740	5745	5750	5755	5760	5765	5770	5775	5780	5785	5790	5795	5800	5805	5810	5815	5820	5825	5830	5835	5840	5845	5850	5855	5860	5865	5870	5875	5880	5885	5890	5895	5900	5905	5910	5915	5920	5925	5930	5935	5940	5945	5950	5955	5960	5965	5970	5975	5980	5985	5990	5995	6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Rick Chao



Kenny Briggs



Stephen MacCharles



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## Case Manager

- ASUS P55-P Pentium III 440MX, ATX
- Intel Pentium III 500MHz (Retail)
- Drive 10GB/15.2GB/30GB/40GB/60GB/80GB/100GB
- 17.025 Ultra DMA-66 Hard Drive
- 1.44 MB High Density FDD
- Huawei G2000 DVD (8000X) Int.
- Mouse ASP Millennium 0400 32000 (OCM)
- Creative PCI SB Live Value 1234 (OCM)
- Aspen PCI P8000-H ITU-T V.90 56K Voice Int.
- Printer 17" GS-A1 KTX w/250W PS
- Samsung SyncMaster 700 9" 17"
- 128K x 1024 256K
- Fujitsu 8125 P50 Keyboard
- A Open 20 First Mouse wireless
- Microvella M-8102 SubMini color
- MS Windows 98 Second Edition (OCM)
- 2 Year Parts & Labour warranty

\$1,299



## Corporate Edition

- ASUS P55-P Pentium III 440MX, ATX
- Intel Pentium III 500MHz (Retail)
- Drive 10GB/15.2GB/30GB/40GB/60GB/80GB/100GB
- 1.44 MB High Density FDD
- Creative PCI SB Live Value 1234 (OCM)
- Creative ASP Graphics Decoder RMA T&T 16MB
- Aspen PCI P8000-H ITU-T V.90 56K Voice Int.
- Creative PCI External Audio (OCM)
- Link PCI P8000-H ITU-T V.90 56K
- Printer 17" GS-A1 KTX w/250W PS
- Colquest G17 17" 270mm Monitor
- Fujitsu 8125 P50 Keyboard
- A Open 20 First Mouse wireless (OCM)
- Microvella M-8102 2nd Edition (OCM)
- MS Windows 98 Second Edition (OCM)
- 2 Year Parts & Labour warranty

\$1,499

## Remembrance Day Edition

- ASUS P55-P Pentium III 440MX, ATX
- Intel Celeron 400MHz Socket 370
- Drive 10GB/15.2GB/30GB/40GB/60GB/80GB/100GB
- 1.44 MB High Density FDD
- Creative SB Live Value 1234 (OCM)
- ATI AGP Xpert 96 MB (OCM)
- Creative PCI External Audio (OCM)
- Aspen PCI P8000-H ITU-T V.90 56K Voice Int.
- Printer 17" GS-A1 KTX w/250W PS
- Samsung SyncMaster 700 9" 17"
- 8125 P50 Keyboard
- A Open 20 First Mouse wireless (OCM)
- Adaptor Slot to G379
- FMPC SPS01 Stereo Speakers (OCM)
- MS Windows 98 Second Edition (OCM)
- 2 Year Parts & Labour warranty

\$1,399



\*All prices reflect 2% cash discount

\*All prices & specs are subject to change without notice

\*All logos and trademarks are their respective owner

Model	Year	Processor	Memory	Storage	OS/Video	Monitor	Price
97000	1997-01-01	486-50	16MB	10GB	SVGA	15"	\$299
97001	1997-01-01	486-50	16MB	15GB	SVGA	15"	\$329
97002	1997-01-01	486-50	16MB	20GB	SVGA	15"	\$359
97003	1997-01-01	486-50	16MB	25GB	SVGA	15"	\$389
97004	1997-01-01	486-50	16MB	30GB	SVGA	15"	\$419
97005	1997-01-01	486-50	16MB	35GB	SVGA	15"	\$449
97006	1997-01-01	486-50	16MB	40GB	SVGA	15"	\$479
97007	1997-01-01	486-50	16MB	45GB	SVGA	15"	\$509
97008	1997-01-01	486-50	16MB	50GB	SVGA	15"	\$539
97009	1997-01-01	486-50	16MB	55GB	SVGA	15"	\$569
97010	1997-01-01	486-50	16MB	60GB	SVGA	15"	\$599
97011	1997-01-01	486-50	16MB	65GB	SVGA	15"	\$629
97012	1997-01-01	486-50	16MB	70GB	SVGA	15"	\$659
97013	1997-01-01	486-50	16MB	75GB	SVGA	15"	\$689
97014	1997-01-01	486-50	16MB	80GB	SVGA	15"	\$719
97015	1997-01-01	486-50	16MB	85GB	SVGA	15"	\$749
97016	1997-01-01	486-50	16MB	90GB	SVGA	15"	\$779
97017	1997-01-01	486-50	16MB	95GB	SVGA	15"	\$809
97018	1997-01-01	486-50	16MB	100GB	SVGA	15"	\$839
97019	1997-01-01	486-50	16MB	105GB	SVGA	15"	\$869
97020	1997-01-01	486-50	16MB	110GB	SVGA	15"	\$899
97021	1997-01-01	486-50	16MB	115GB	SVGA	15"	\$929
97022	1997-01-01	486-50	16MB	120GB	SVGA	15"	\$959
97023	1997-01-01	486-50	16MB	125GB	SVGA	15"	\$989
97024	1997-01-01	486-50	16MB	130GB	SVGA	15"	\$1,019
97025	1997-01-01	486-50	16MB	135GB	SVGA	15"	\$1,049
97026	1997-01-01	486-50	16MB	140GB	SVGA	15"	\$1,079
97027	1997-01-01	486-50	16MB	145GB	SVGA	15"	\$1,109
97028	1997-01-01	486-50	16MB	150GB	SVGA	15"	\$1,139
97029	1997-01-01	486-50	16MB	155GB	SVGA	15"	\$1,169
97030	1997-01-01	486-50	16MB	160GB	SVGA	15"	\$1,199
97031	1997-01-01	486-50	16MB	165GB	SVGA	15"	\$1,229
97032	1997-01-01	486-50	16MB	170GB	SVGA	15"	\$1,259
97033	1997-01-01	486-50	16MB	175GB	SVGA	15"	\$1,289
97034	1997-01-01	486-50	16MB	180GB	SVGA	15"	\$1,319
97035	1997-01-01	486-50	16MB	185GB	SVGA	15"	\$1,349
97036	1997-01-01	486-50	16MB	190GB	SVGA	15"	\$1,379
97037	1997-01-01	486-50	16MB	195GB	SVGA	15"	\$1,409
97038	1997-01-01	486-50	16MB	200GB	SVGA	15"	\$1,439
97039	1997-01-01	486-50	16MB	205GB	SVGA	15"	\$1,469
97040	1997-01-01	486-50	16MB	210GB	SVGA	15"	\$1,499
97041	1997-01-01	486-50	16MB	215GB	SVGA	15"	\$1,529
97042	1997-01-01	486-50	16MB	220GB	SVGA	15"	\$1,559
97043	1997-01-01	486-50	16MB	225GB	SVGA	15"	\$1,589
97044	1997-01-01	486-50	16MB	230GB	SVGA	15"	\$1,619
97045	1997-01-01	486-50	16MB	235GB	SVGA	15"	\$1,649
97046	1997-01-01	486-50	16MB	240GB	SVGA	15"	\$1,679
97047	1997-01-01	486-50	16MB	245GB	SVGA	15"	\$1,709
97048	1997-01-01	486-50	16MB	250GB	SVGA	15"	\$1,739
97049	1997-01-01	486-50	16MB	255GB	SVGA	15"	\$1,769
97050	1997-01-01	486-50	16MB	260GB	SVGA	15"	\$1,799
97051	1997-01-01	486-50	16MB	265GB	SVGA	15"	\$1,829
97052	1997-01-01	486-50	16MB	270GB	SVGA	15"	\$1,859
97053	1997-01-01	486-50	16MB	275GB	SVGA	15"	\$1,889
97054	1997-01-01	486-50	16MB	280GB	SVGA	15"	\$1,919
97055	1997-01-01	486-50	16MB	285GB	SVGA	15"	\$1,949
97056	1997-01-01	486-50	16MB	290GB	SVGA	15"	\$1,979
97057	1997-01-01	486-50	16MB	295GB	SVGA	15"	\$2,009
97058	1997-01-01	486-50	16MB	300GB	SVGA	15"	\$2,039
97059	1997-01-01	486-50	16MB	305GB	SVGA	15"	\$2,069
97060	1997-01-01	486-50	16MB	310GB	SVGA	15"	\$2,099
97061	1997-01-01	486-50	16MB	315GB	SVGA	15"	\$2,129
97062	1997-01-01	486-50	16MB	320GB	SVGA	15"	\$2,159
97063	1997-01-01	486-50	16MB	325GB	SVGA	15"	\$2,189
97064	1997-01-01	486-50	16MB	330GB	SVGA	15"	\$2,219
97065	1997-01-01	486-50	16MB	335GB	SVGA	15"	\$2,249
97066	1997-01-01	486-50	16MB	340GB	SVGA	15"	\$2,279
97067	1997-01-01	486-50	16MB	345GB	SVGA	15"	\$2,309
97068	1997-01-01	486-50	16MB	350GB	SVGA	15"	\$2,339
97069	1997-01-01	486-50	16MB	355GB	SVGA	15"	\$2,369
97070	1997-01-01	486-50	16MB	360GB	SVGA	15"	\$2,399
97071	1997-01-01	486-50	16MB	365GB	SVGA	15"	\$2,429
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97073	1997-01-01	486-50	16MB	375GB	SVGA	15"	\$2,489
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97076	1997-01-01	486-50	16MB	390GB	SVGA	15"	\$2,579
97077	1997-01-01	486-50	16MB	395GB	SVGA	15"	\$2,609
97078	1997-01-01	486-50	16MB	400GB	SVGA	15"	\$2,639
97079	1997-01-01	486-50	16MB	405GB	SVGA	15"	\$2,669
97080	1997-01-01	486-50	16MB	410GB	SVGA	15"	\$2,699
97081	1997-01-01	486-50	16MB	415GB	SVGA	15"	\$2,729
97082	1997-01-01	486-50	16MB	420GB	SVGA	15"	\$2,759
97083	1997-01-01	486-50	16MB	425GB	SVGA	15"	\$2,789
97084	1997-01-01	486-50	16MB	430GB	SVGA	15"	\$2,819
97085	1997-01-01	486-50	16MB	435GB	SVGA	15"	\$2,849
97086	1997-01-01	486-50	16MB	440GB	SVGA	15"	\$2,879
97087	1997-01-01	486-50	16MB	445GB	SVGA	15"	\$2,909
97088	1997-01-01	486-50	16MB	450GB	SVGA	15"	\$2,939
97089	1997-01-01	486-50	16MB	455GB	SVGA	15"	\$2,969
97090	1997-01-01	486-50	16MB	460GB	SVGA	15"	\$2,999
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97092	1997-01-01	486-50	16MB	470GB	SVGA	15"	\$3,059
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97096	1997-01-01	486-50	16MB	490GB	SVGA	15"	\$3,179
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97098	1997-01-01	486-50	16MB	500GB	SVGA	15"	\$3,239
97099	1997-01-01	486-50	16MB	505GB	SVGA	15"	\$3,269
97100	1997-01-01	486-50	16MB	510GB	SVGA	15"	\$3,299
97101	1997-01-01	486-50	16MB	515GB	SVGA	15"	\$3,329
97102	1997-01-01	486-50	16MB	520GB	SVGA	15"	\$3,359
97103	1997-01-01	486-50	16MB	525GB	SVGA	15"	\$3,389
97104	1997-01-01	486-50	16MB	530GB	SVGA	15"	\$3,419
97105	1997-01-01	486-50	16MB	535GB	SVGA	15"	\$3,449
97106	1997-01-01	486-50	16MB	540GB	SVGA	15"	\$3,479
97107	1997-01-01	486-50	16MB	545GB	SVGA	15"	\$3,509
97108	1997-01-01	486-50	16MB	550GB	SVGA	15"	\$3,539
97109	1997-01-01	486-50	16MB	555GB	SVGA	15"	\$3,569
97110	1997-01-01	486-50	16MB	560GB	SVGA	15"	\$3,599
97111	1997-01-01	486-50	16MB	565GB	SVGA	15"	\$3,629
97112	1997-01-01	486-50	16MB	570GB	SVGA	15"	\$3,659
97113	1997-01-01	486-50	16MB	575GB	SVGA	15"	\$3,689
97114	1997-01-01	486-50	16MB	580GB	SVGA	15"	\$3,719
97115	1997-01-01	486-50	16MB	585GB	SVGA	15"	\$3,749
97116	1997-01-01	486-50	16MB	590GB	SVGA	15"	\$3,779
97117	1997-01-01	486-50	16MB	595GB	SVGA	15"	\$3,809
97118	1997-01-01	486-50	16MB	600GB	SVGA	15"	\$3,839
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97122	1997-01-01	486-50	16MB	620GB	SVGA	15"	\$3,959
97123	1997-01-01	486-50	16MB	625GB	SVGA	15"	\$3,989
97124	1997-01-01	486-50	16MB	630GB	SVGA	15"	\$4,019
97125	1997-01-01	486-50	16MB	635GB	SVGA	15"	\$4,049
97126	1997-01-01	486-50	16MB	640GB	SVGA	15"	\$4,079
97127	1997-01-01	486-50	16MB	645GB	SVGA	15"	\$4,109
97128	1997-01-01	486-50	16MB	650GB	SVGA	15"	\$4,139
97129	1997-01-01	486-50	16MB	655GB	SVGA	15"	\$4,169
97130	1997-01-01	486-50	16MB	660GB	SVGA	15"	\$4,199
97131	1997-01-01	486-50	16MB	665GB	SVGA	15"	\$4,229
97132	1997-01-01	486-50	16MB	670GB	SVGA	15"	\$4,259
97133	1997-01-01	486-50	16MB	675GB	SVGA	15"	\$4,289
9							



# A short history of computers

Continued from page 26

discriminative signals to move mechanical parts. The machines could perform basic arithmetic and store complex programs. There were no stored programs, of course. Instead, instructions were fed into the machine by a paper tape.

In the wake of the Mark I, the ENIAC (Electronic Numerical Integrator and

Computer) came into being, the result of a partnership between the University of Pennsylvania and the U.S. government. While the ENIAC was 1,000 times faster than the Mark I, it consumed 140 kilowatts of power, enough energy for a small city. The ENIAC was an enormous jumble of apparatus, with 1,800,000 individual tubes, 70,000 switches, and 31,000 vacuum tubes.

In 1945, John von Neumann, created the

EDVAC (Electronic Discrete Variable Automatic Computer). This computer could hold a stored program along with data. With his innovations, the computer could be reset at any time, thus making, picking up where it left off. The stored program facility with programming. Another important innovation was the central processing unit (CPU), which formulated all computer functions through a single use of the machine. By 1955, the released

in the production of the Univac I, one of the first commercially available computers. A decade later for the Univac was producing that Dwight D. Eisenhower would win the 1952 U.S. presidential election.

## 40 years after the rise of transistors

In 1948, U.S. researchers John Bardeen and Walter H. Brattain took out a patent for a new device. William S. Shockley applied for a patent for the transistor effect and a transistor amplifier. In 1951, transistors became commercially available. By 1955, transistors were being produced in large quantities quickly replacing nearly all vacuum tubes. In 1958, semiconductor businesses were valued at the rate of a grain of salt.

In 1958, Jack Kilby, an engineer with Texas Instruments, invented the first integrated circuit. Robert Noyce improved upon it, creating and patenting a method to manufacture the components on a chip.

After the creation of integrated circuits, came the challenge to manufacture them for less. The quest through three more steps. The first, 221 (large scale integration) made it possible to build thousands of components onto a single chip. VLSI (very large scale integration) came next, bring thousands of components onto a chip. Finally, ULSI (ultra large scale integration) made it possible to fit millions of components onto a single chip. As the chips became smaller they also became faster, more flexible and cheaper.

During the 1960s, computers were built from solid-state components, allowing miniaturization and replacing vacuum tubes. During the same, the IBM 1401 was produced. The 1401 was an important milestone, because it contained all the components now would find in a present day computer.

An important feature of these computers was that they drove programs from tape drives. This made it possible to calculate data on tape and copy to replace or update data on tape. In fact, while another would be the main bit crunching, while another would be the main bit crunching. For example, FORTRAN (Formula Translator) and COBOL (Common Business Oriented Language) became the most common languages, making it easier to program a computer, and replacing the older method of using machine code.

## The origin of the TSE "bug"

What we now call the TSE "bug" (naturally a two-digit code field, which, when a code over 99 is entered) on New York's EIS, can be traced back to a computer in 1947, called the EIS, began with the success of the Colbit in 1945. For the next 20 years, more programs were written in Colbit than any other language. Programmers during that time had the option of using two- or four-digit fields, but the two-digit field was much more common. By 1965, Colbit finally adopted the four-digit field, but unfortunately, it didn't catch on immediately.

## The mighty mouse

On June 25, 1967, Doug Engelbart applied for a patent on his X-Y Position Indicator for a Display System, now better known as the mouse, a device that he had been thinking about and working on for more than a decade. Engelbart had originally decided not the idea of the mouse as a device that he had carried around for years. Around 1964, he and a group of people he worked with got some money to

Continued on page 28

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### Abstract

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Age Group	Total (%)	Male (%)	Female (%)	Unknown (%)
18-24	15	10	20	5
25-34	25	15	35	10
35-44	35	25	45	20
45-54	45	35	55	30
55-64	55	45	65	40
65+	65	55	75	50

## Abstract

### Case-control study

Polynomial Ring    Discrete Log    Elliptic Curve    Elliptic Curve

**Abstract** *Background:* The purpose of this study was to determine the prevalence of and risk factors for the presence of a urinary tract infection (UTI) in patients with a urinary catheter (UC) in the intensive care unit (ICU). *Methods:* A descriptive study was conducted in a tertiary-level, 100-bed ICU. All patients with a UC were included in the study. Data were collected from the medical records and a questionnaire. *Results:* A total of 100 patients with a UC were included in the study. The prevalence of UTI was 32%. The risk factors for the presence of a UTI were age, gender, duration of UC, and duration of ICU stay. *Conclusion:* The prevalence of UTI in patients with a UC in the ICU was 32%. The risk factors for the presence of a UTI were age, gender, duration of UC, and duration of ICU stay.

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**Figure 1**



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# From 1716 to 1806

Continued from page 48  
 inspired Christopher Columbus to voyage to  
 much of the New World in 1492.

## The spinning top

During the 16th, a fundamental change took place in the group of sciences. European scientists that in 1500 had been largely in a state of ignorance, were brought into the culture of the sciences—the books and the sciences—for the next 160 years. To put it simply, Europe looked itself up largely by learning what we would now call knowledge sciences.

European universities established over the preceding centuries (Cicco 4 in 1341, and Caenno, Pinedo in 1367) had helped develop a critical mass of scholars and the technical skills associated with metallurgy, mining, and cartography making possible the rise to a new of both biological sciences that has continued to the present day. In 1591, the great and mythical Geoffrey Chaucer wrote perhaps the first English technical reference, a treatise on the sciences, which had been in circulation in France via French Spain.

To begin the Islamic world's monopoly on trade with the East, Portugal's Prince Henry the Navigator established a research center on the coast of Portugal called Vila da Indiferencia. There, between 1418 and 1488, what are now engineers developed the navigation, measurement and shipbuilding technology that enabled Europeans to sail around the world and to map all the oceans.

The value of "technical progress" was expressed by the leaders of the European states from the Renaissance on, and both public and private money was lavished on education, publishing, research, and development. The perfection of printing press using movable metal type by Johann Gutenberg in the mid 1460s gave a huge boost to literacy and the spread of information. The development of sophisticated banking and trading systems completed a self-reinforcing loop of great open, scientific and economic growth.

## Europe's scientific

Information technology was fundamental to helping the European industrial organization, and there was common effort to systematize and mechanize the collection and transmission of critical information. For several centuries efforts were made to develop methods of calculating devices that would speed up and improve the accuracy of financial, engineering and administrative calculations.

St. John, John Napier, invented a series of algorithms and a simple reference: red cube lines, called Napier's bones, in 1614. The idea was a mechanical device for performing a variety of computations was described in 1620 and inspired several others over the next century. The great French mathematician Blaise Pascal invented a mechanical arithmetical calculator machine in 1642. In 1666, the word "calculator" was first used to describe persons who performed basic measurements or calculations.

The interest by the ancient Greeks, Chinese, and Arabs in mechanical calculating or computing devices for astronomy was carried on with increasing Europe in more European countries, resulting in the Marvellous Clocks, astronomical computers/clocks that employed very sophisticated mathematics in the construction of these great devices to accurately display the movements of stars and planets.

The famous wheel of 1679 was a variable mechanical calculator, and the acquired book of 1688 was a programmable mechanical adding machine that used punched cards to program simple programs. The efficiency of the acquired book encouraged European scientists to develop a host of manufacturing machinery in complex industrial production. European industry increasingly dominated the world economy in a result.

Europeans began to explore the nature of electricity and its application to both industry and to living organisms. Luigi Galvani invented the study of electrophysics in 1784, demonstrating that electricity was an electrical component in living nervous systems. Thermodynamics, the phenomenon whereby heat can be converted into other forms, was discovered in 1824.

As the industrial revolution gained momentum there was an ever increasing pressure for

greater efficiency and speed in processing mechanical calculations. Charles Babbage conceived the first practical, mass-produced mechanical calculator for business use in 1820, and his operational adding and subtracting device became a general industry of the 19th century.

## The Difference Engine

The most ambitious attempt in field a truly



powerful computing device prior to the 20th century took place in England in the 1830s, where Charles Babbage spent a lifetime and money (and emerging to build the Difference Engine, an extremely mechanical computer Babbage's designs envisioned, but he was out of money and time before the device was finished.

However, one of his associates in the project, Ada Byron, the Countess of Lovelace, wrote an account of the Difference Engine project, the

is credited with being the first female computer programmer.

In 1946, the mathematician George Boole introduced a system for organizing numerical information in the form of ones and zeros, a method called Boolean Algebra. With the development of electronic digital computers, the logical system became the basis for encoding digital information, and the basis for developing computer programs.

#### Timeline technology

By the mid-1800s a new player appeared on the technology scene, in the form of the United States. Originally a mostly agrarian society dependent on European manufacturing resources and markets, the U.S. developed its own technology system and a rigorous business culture that encouraged a systematic analysis upon the efficiency and an almost religious belief in the virtue of getting rich.

Inventors such as Alexander Graham Bell, Thomas Edison, and Nikola Tesla opened many of the modern world's most significant technologies. In the case of Bell and Edison, who were also quite able businessmen, their entrepreneurs resulted in enormous wealth and the foundation of great companies that still exist today.

In the case of Tesla, one of the most profoundly creative individuals in the history of mankind, the true character of genius, the alternating current, and the electric power system, is completely lost to history and memory, as he died in obscurity and poverty, while a certain George Westinghouse and the company he formed became immensely rich.

The American Herman Holmberg created a mechanical calculating machine for processing census information, which was used to process the data from the 1890 U.S. census. The device was successful, and Holmberg's company eventually evolved into IBM.



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## WordPerfect Family Pack

Great packs productivity, creativity, optimism, futurism **into** bundles that offers something for everyone

Good. Good. Very. Microsoft's new WordPerfect Family Pack, which has a suggested retail price of \$99 (and a 100-mail-in rebate offer) will also appear in independent bundles or in direct-to-consumer PCs because of its modest system requirements.

The WordPerfect Family Pack requires a minimum of a 500MHz 486-based system (running Windows 95/98/NT 4.0), over 10 MB RAM (20 MB recommended), 50 MB (100 MB for typical install) hard disk space, and a CD-ROM drive. The bundle includes:

- Corel's WordPerfect 8 word processor
- Skencil Pro II spreadsheet program
- Photo Viewer image & graphics program which has a range of creative projects such as greeting cards, banners, and party decorations, and includes easy-to-use templates and layout
- Photo House 3 image-editing software for touching up or adding special effects to digital photos
- The Learning Company's Home Business Planner Spreads II to keep company and reduce time to type and improve typing speed
- Computer Interactive Group's ready-to-use multimedia reference
- A six-month subscription to [ExpertCity.com](http://ExpertCity.com), Corel's new online support community, which features more than one million images
- and the Task Manager, which shows how users through a variety of projects using different applications in the bundle

—Michael Johnston

# Comdex's hidden gems

By Tom Iversen and David Sarraf

Full Comdex in Las Vegas is always a cornucopia of major announcements and major product releases, and this year's computer trade show was no different.

## COMDEX

While companies like Citrus-based Core Corp. grabbed the spotlight with the release of the Core! Linux OS, and numerous dozens of companies showcased a variety of MP3 players, some of the most interesting technologies were presented quietly, without the usual Las Vegas hype and glitz.

### Linux connection

Educative, 406, based State Solutions and Comdex is demonstrating Netfinity, a search and optimization tool by Lotus.

Mary Tassara, vice-president of marketing for Erics, says Netfinity is not a search engine in the classic sense, like Yahoo!, but a device to the search results engine on the Microsoft operating system.

"The whole idea positioning is the ability to go out and find things on your [hard] disk in your file system and navigate the Internet or network," Tassara adds. "Our positioning is

very similar to Hotfinity, but we're Lotus, not Microsoft, is the idea."

Tassara adds that Hotfinity will be especially welcome on business and government environments that have Linux and need to access a number of databases and the Internet for information.

Unlike other search engines that group related information by how frequently they appear, Netfinity uses neural net-based Optimizing Maps to "recognize" documents. When someone logs on a search based on a word, phrase or idea, Netfinity uses the neural net to pull information from the Internet database in network. It then checks to see how closely the documents match the words, then compares them to each other to remove duplicates.

Tassara says Netfinity can be set to only search for documents that are in daily rotation to the search problem at hand, cutting down on the number of hits and documents that have to be searched.

"We can quickly say that the engine should only give you documents that are 75 to 90 percent relevant, so irrelevant documents start to disappear, allowing you to make decisions in what you really want," Tassara adds.

Eric is already in talks with federal and provincial agencies, including the Department of Defense, about using Netfinity software.

Tassara wants out go into details on the progress of the tool.

InfoSource: <http://www.eric.com>

### OT Iversen Communications' 2000

If there's a strong at large corporate and government clients, then Message One, based in Connecticut, is a strong at large. It's one of the small and home office (SOHO) and small business market with its Communicator 2000 unified messaging solution, which integrates voice, email and faxing solutions.

On the video call, Communicator 2000 offers videoconferencing using the H.323 protocol, voice attachments and video conferencing. The monitoring and attendance features can be used together as a security system, allowing one to monitor everything from the office to the home.

"You could have your PC with a camera at home during the front door and it will detect motion, taking a picture of an intruder," says Dave Mullown, vice president of sales and marketing for R1 Communications. "It will attach that image to an email and send it to your address. Then you can shut the software and talk to the intruder and see if you can get out of the house, close the door and stop the intruder. I believe the plan to be local police departments."

It's a strong at large office, and a strong at large home, but the two are not the same. They can be used and a more important feature will be attached to an email message and video. The Internet being in the solution is not the support for up to four different systems including cable and DSL.

"All of our products are designed to be SOHO market," Mullown adds. "We're focused on getting up and running and we want to give the SOHO and small business our own type of business communications that is possible at a very low cost."

OT Communications: <http://www.r1comm.com>



Lotus's Net-Port LocalNet Plus card

Continued on page 10

## ILLEGALLY INSTALLED SOFTWARE DON'T BE A VICTIM!

Warning of PC prices that are too good to be true. First is, to get the price down, the PC dealer needs have illegally installed unlicensed software onto the hard drives of the PCs prior to sale. With illegally installed software, you're missing out on more than just the stealer. If you need to reformat the software, you can't do it without the CDs. If you need to fix a problem, there are no product manuals to help you. Without Certificate of Authenticity, the product is likely to be counterfeit and you put yourself at risk.

### Reasons to buy and install

Original software CDs — Product manuals for every operating system — Certificate of Authenticity

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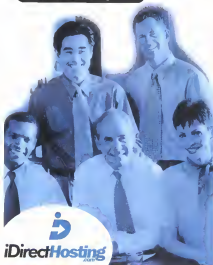
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#### Condor's is hidden gem

Continued from page 42  
**Multi-point front-ends**

But if Condorians are looking at every possible kind of communication solution for their companies, they are also becoming judicious, studying everything they can find in their systems. This has created companies, particularly in computer users' area, that are looking for Condor's front-end to meet their com-

panies, only in Condor's Plus, which covers serial and parallel ports.

"We put three separate parts on one card, two serial and one parallel," says Rajiva "Beppe" marketing manager for Intel. "The two serial parts are capable of 1180 baud and COM port sharing because it is a PCI card. So you can hook up a serial device to the two serial ports, and the two devices will share resources."

"Beppe adds the parallel port is also three times faster than other built-in parallel ports, allowing the faster data transfer rates, which are especially useful for people looking to dial up direct or indirect to their system. The two serial ports offer data rates of up to 1180Kbps.

The Condor-Plus is not exclusively serial or other systems. Beppe says some systems are also targeted because "there are no enough

PCI products that can be hooked up to the PCI slot on the motherboard... so if you want to hook up an extra device, you have to search for and look for other ones."

See us, <http://www.condorplus.com>

#### Newsrooms

Thoughtful based in Italy (Italy) has released a collaborative computing environment called QuickView based on Internet technologies.

"QuickView is a portal where users can collaborate, work together, discuss and manage projects, and spread their information such as documents, notes, calendar, and many more other things that we've found users are looking for in their work," said Greg Hays, Thoughtful's vice-president of marketing.



"Because it uses Internet standards, users anywhere can access the virtual workplace using a Web browser. Users anywhere can access the most recent any time, anywhere," said Hays. "Users do not need to install. You just need to go to a Web browser, go to the Internet, enter a password, and get to your team room."

Hays says collaborative tools are being adopted most widely by law firms, the health industry, financial, telecommunications and pharmaceutical industries. But he adds that "users that work with more data within an enterprise, such as government, and even the Internet will use the benefits of QuickView."

The company offers a low limited function version called QuickView Express. QuickView Professional has more features, such as advanced security, whiteboarding and Chat. Clients. The professional version can be based for \$5500.00 per user per month. For companies that want to host their own team room, Thoughtful sells the server version of QuickView Professional for \$5500.00 with a three-year license. Multiple user licenses pack and the license are also available.

Thoughtful, <http://www.thoughtful.com>

#### QuickLink Plus online, shows less

A few years ago, you could access a product called the QuickLink, a single line website that the user of a single page number. You could click a highlight menu on the top, which would show a small screen, screen full of text on a page. Optical character recognition (OCR) software would. Continued on page 43

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# Corel simplifies Linux experience

The development of a user-friendly Linux may be what's needed to move the much talked about OS off the server and onto the desktop

By Tom Ichniowski

Linux's greatest success to date has been its popularity in a niche operating system. For example, Intel-based International Data Corp. (IDC) reports that 11 percent of commercial organizations are using Linux. By 2005, IDC predicts Linux commercial deployment will have a compound annual growth rate of nearly 11 percent, compared with a rate of 18 percent for all other client operating environments, and 12 percent for all other server environments.

Linux's popularity on servers, however, has not translated into getting the operating system onto desktop PCs. In this market, Linux has a lot of catching up to do.

"Linux has a market share less than half of the Mac OS, but more than twice of OS/2 or Unix," says Dan Kozlowski, director of operating environment research for IDC. "So Linux is there, but it's not a viable force."

The reason, Kozlowski explains, is many factors. In its present form, Linux is simply too hard to use. While efforts have been made to simplify it, many outside the pro-

gramming community still regard the OS as something only used by hardcore computer "geeks."

"Linux was developed by a community of developers, and it's a pain for developers who don't want typing on a command line and juggling all the bits in the OS to get things just the way they want them," says David Charles Brundin and president of Linux Entertainment Software, or Linuxsoft.

Linux ports popular PC-based games—including Civilization, Real Ghosts, Real Time Tactics II, and Ultimate Demos—onto its Linux.

"But most people want to use their computer and don't have the time or the interest to deal with that kind of thing," Charles says. "I want desktop boxes, games and the kinds of tools created by Apple and Microsoft to make the computer time enjoyable to the extent as it is."

Enter Ubuntu Linux. Corel Linux partners with an ambitious goal of making its Linux OS the desktop alternative to Microsoft and other major operating systems. Corel's initiative was announced in April 1999 with an alliance between Corel and two open source developers

communities. The alliance was formed to develop a graphical user interface (GUI) for Linux and to simplify the installation process, which many potential users found too cumbersome to do in the past. In fact, Linux was a system. Corel's goal was to develop a version of Linux OS that automatically detects the system's hardware—including sound cards, CD-ROM drives, printers, and network—and loads all the necessary drivers.

Corel and its Desktop worked to improve the GUI interface that Corel is using with its Linux OS. The Corel Linux OS is also built around the Debian GNU/Linux distribution, which is currently one of the more popular Linux variants.

## Doing on Wine

A key and equally ambitious component of Corel's Linux strategy was to apply its work on the open source Wine Project to make 32-bit Windows applications run on Linux.

Concurrently, Corel's development of Quattro Pro for Windows running on Linux through a Wine layer—enables the Windows OS on the system. By advancing the work of the Wine open source project, Corel hopes to make Linux more compelling to consumers who might otherwise stay away because of a lack of Linux versions of their favorite Windows applications. Continued on page 50



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**Comcast's hidden gems**

Continued from page 54

The laptop was back at Full Comdex, but joined by a crop of next-generation cordless gear, courtesy of a variety of manufacturers. One we got our hands on was the QuickLink Pro Personal Journal, from iMCom Technologies. The ComLink is headquartered in itself and a U.S. office in Akron, Ohio.

The QuickLink Pro takes the general design principle of a pen, connects to a new laptop, by adding wireless storage (up to 1,000 pages of data, according to the company). The device is about the size of a traditional xPCC card pen. It is a truly portable device, drawing its power from two AAA batteries.

An address book, which allows you to store specific parts of a business card into the contact field. Once you've entered various bits of

text and business cards, you can then connect the device to your PC via a serial cable. The address book fields can be mapped to corresponding fields in popular PC programs, such as Microsoft Outlook. A small LCD screen on the end also allows you to view the pen as an electronic address book.

The pen measures 10.13x3.5x1.8 cm (4x1.5x.7 in.) and weighs 80 g (2.8 oz). The company said software would cost to be used



QuickLink Pro Personal Journal

also to allow the QuickLink Pro to communicate with wireless-capable PCs. iMCom plans handheld devices, and will place them through the pen's back in future years.

We did a quick test of the device and found that in a series of 47 word paragraphs of 16 points from the scanner made four minutes, including the first word of the scan and a second that was printed in boldface type, along with containing two punctuation marks. We had when taking into account the window for error maximum with error having been the product before. The company claims the device is 95-percent accurate. The unit will be selling for an estimated street price of \$244.95.

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**Linux software march into mainstream**

Continued from page 41

Windows and a widely compatible with Windows, graphics, Windows device and Windows file.

Completed also tested the use of similar test—your step-by-step Core's Linux. The complexity of installing Linux as a desktop PC has been one of the key barriers to widespread adoption of the OS.

Core also demonstrated alpha versions of QuattroPro and CoreDraw in Linux, and announced that its complete suite of business productivity applications is, Red Hat's Office, will be available in a beta version only next year. (A Linux version of its word processor software, WordPerfect, is already available.)

Don Kennedy, program director for the Programming, Linux-based International Dev Corp. and having made Linux-based applications will be important in getting mainstream acceptance for the OS, which is gradually growing in use by about 25 percent per year until 2003. (2)

**Linux around the world**

http://www.linux.com/24  
The Linux community has expanded into the new business with a new site offering over 10,000 free Linux distributions. Available Linux distributions can be used on many computers as a source for Linux-based information on the Web. The site also offers: free Linux and online for downloading and installing around the world. The site provides you with a shopping cart to you can visit on the hardware you want and they will be sent to your home, free shipping.  
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#### Business Plan: Gold

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## TN and PS

(Continued from page 54)

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Before you buy, however, think carefully about the video signals you use, and how you use them. There's still a good lot of things you can't do with a TV card and PC. You can't record one channel and watch another. You can't pause a show while someone else shows it.

There must be something where you left off while it continues recording. You can't tune in to a satellite signal or service from any other satellite dish. These cards don't support digital TV.

Also consider that satellite remote is not as easy to use as a conventional household model. Buttons you take for granted, like fast forward and rewind, may not even be available.

Don't buy one of these cards if you're looking for ease of use and flawless, problem-free performance. Although the graphics feature are rock-solid, the convergence features *don't* make work. Hardware, software, and operating system integration can be shaky, intricate and idiosyncratic. The bills can't be a first generation convergence product. This is Microsoft's second time out for the Internet, and AT&T's third release of the All-in-Wonder.

From my own experience, and from others in the group, for each of these cards, you will likely run into problems of one kind or another:

If you do decide to take one home, you'll be well on your way to creating your own one-stop audio server that has more features and a lower price tag than those dedicated personal music encoders (PMEs) from Rhapsody and iTunes.

Continued on page 21

[illegible]

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All has led to the use in the compact graphics card marketplace. The All-In-Wonder 128 maintains the look-on features and functions. With the exception of an HDTV tuner, the card has it all. There are no minimum CPU requirements listed on the All-In-Wonder 128 box, but it does indicate that a 300 MHz Pentium III processor is required for "good" video capture and a Pentium III CPU is needed for "best" video capture.

Of the three cards, this one was initially the fastest. After the second dimensional, however, it did let me work and record on video TV at the maximum, and would record a show in any direction.

The All-In-Wonder 128 has no built-in analog TV modules from 440MHz to 1,010MHz. The only "TV display" mode was the live TV image in your PC's wallpaper (in the end I preferred to watch TV on a monitor while I worked).

This card works in many formats, including AVI, MPEG-1, and MPEG-2. The default VCR format is progressive, but the codec is available at the ATI Web site, so even those without All-In-Wonder cards can play back VCR files. The VCR format has a few more visible artifacts than MPEG-2, but only at full-screen playback resolutions higher than 1,024x768.

Both recording formats are compatible in VHS. It was quite happy with the 128x480 use in 30 frames per second (fps) for standard frame-dropping. At that rate, a 30-minute clip is about 1 GB. It is compatible with a high-speed frame rate to take my family camera

shots, but the quality would likely be lost on transfer to VHS. While recording, the All-In-Wonder can do about 40 percent of the processor applied, and playback took 100 percent—even if the processor is a 600 MHz Celeron. The installed Video CD player does a better job of playing back MPEG files than the Windows Media Player.

ATI's experience with previous versions of the All-In-Wonder card, especially at the household software. For each computer—TV tuner, VCR format, DVD playback—the ATI software had the most bells and whistles. In the only one with auto-play allowing you to watch two images—one live, the other delayed by five to 10 seconds (or more, depending on system memory). There is also a channel-swapper that displays still images from each available channel, updating them in a rotation.

All three cards can capture stills from a video (not a DVD), but only the All-In-Wonder captures video and even the image. I love this card's TV Manager's time-lapse of a program (created from the closed captioning and captured video frame). The ability to freeze the data (happening in your favorite program by making a screenshot) quickly becomes a useful feature feature—you can even choose to send the commercials from the time-lapse. The live watch feature will track the closed captioning, looking for specific words or words, and keep, display the TV monitor until recording ends or creating a magazine newspaper.

The ATI DVD player is as good as perfect

and my dedicated Creative Life card. With superior video and playback timing, it offers the best computer-based DVD playback, an option supported by other versions, too.

ATI includes a sample video editor in two clips and its "one-click" assembly. For more advanced work, ATI has included MGI's VideoSpace II software as the All-In-Wonder bundle. Working with VideoSpace II as a photo-processor. For many systems, you can adjust before and any automatic filter's moved. It is visually striking, full of well-thought-out features and my first choice for personal use (I have MGI's recently purchased VideoSpace II).

The cards TV-out feature works well. When you select this mode from the control panel, the monitor changes to 640x480 resolution at 60 Hz. The same image is sent on both the monitor and the TV. This works well for games, unlike watching DVD playback on TV in addition to an external or the computer monitor. If the display resolution is larger when you select TV-out, the screen becomes a window onto the larger monitor display that follows when you leave the screen. A nice feature.

**Marcel G400-TV**  
from Matrox  
Captures about price \$200  
Supports various format video capture, best image from 14 inch (14 inch) for display index.  
The All-In-Wonder and the Windows 100TV are at the top of the ATI and MGI's respective lists. For Matrox, the Marcel series is

between its consumer graphics cards and its professional video cards. Although the other two cards are clearly consumer products, the Marcel reaches a higher level.

Installation and setup was similar to the other cards, with some exceptions. The large connector for the breakout box on the cable, combined with a slight curve on the back of my system, made for a very tight fit. The layout is the only card with internal video connectors. The others have internal cables to the video card.

The documentation indicates that the Marcel will be happy with a 100 MHz Pentium-based system, but recommends a 200 MHz to Pentium CPU. The first print indicates that a 100 MHz to Pentium II is required for optimal DVD playback. This provides a better in testing. On a 300 MHz Celeron system it was the All-In-Wonder different system from DVD playback capable of better frame. When I changed to a 400 MHz Celeron, the Marcel's DVD playback was flawless.

The Matrox has the best image from the TV tuner, at any resolution. This may be because, unlike the ATI and MGI cards, the tuner is not on the PCI card, but on the breakout box. The channel preview feature creates a movable window that updates still images from up to 10 channels, an option.

The Matrox video compression (compressing VHS to MPEG), which is required for TV display in the form of the frame. This is the only card that can output a 1,280x768 resolution picture. The TV output can be independent of the monitor, only in some models are

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## Animals keeps magic of School Bus series

By Joan Allen Deane

Microsoft and Scholastic have combined to create Magic School Bus series. As with previous titles in the series, Magic School Bus takes its students to the latest sites. Equipping the Magic of Animals. This time the virtual world is brought upon habitats around the world, helping children learn about nature's wonders. Designed for six- to 10-year-olds, the title is filled with information on animals, and only some have become extinct. This is the seventh title in the series, which is based on the popular books and television show produced by Scholastic Entertainment, a wing of the book publisher of the same name.

Single School Bus Animals  
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According to Pam Moore of the San Diego Natural History Museum "The world is so large teaching children about the wonders around us is often tough. Interaction with the environment, animals and technology, the more we encourage them is always a part of scientific enterprise and discovery throughout the world."

Magic School Bus series is the most appropriate and fun science teacher any of us have ever needed. But the fun goes far beyond science with this series. It's a fun and easy way to learn about the world around us. It's a fun and easy way to learn about the world around us. It's a fun and easy way to learn about the world around us.

My wife and I have enjoyed the Magic School Bus series. It's a fun and easy way to learn about the world around us. It's a fun and easy way to learn about the world around us. It's a fun and easy way to learn about the world around us.



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record the ambient sound in your clip. The 4x1.5-inch CCD view panel can be tilted up or down for viewing during recording or playback.

The resolution of still videos in Photo mode is suitable for the Web, but when scaled to a full-size post, doesn't come close to the quality of shots from a 35 mm or APS film camera, or even a still image digital camera.

#### Video

Showing digital video on home media, however, really shows off the strengths of the camera. Unlike the Optima, Canon is the first to utilize progressive scanning (CCD technology in consumer video). This is made possible with a new digital integrated circuit (IC) that processes every pixel in its CCD strip in a rate of 50 fields per second. What makes this rate more exciting is that all of the signal processing is being done simultaneously with other essential functions such as automatic focusing and exposure.

Digital cameras that don't use progressive scanning can capture and record 60 fields per second, but their ICs can only keep up with the CCD strip by recording every two pixels on a first pass, and then two pixels on a second pass. This effectively drops the recording rate to 30 frames per second and degrades the quality by introducing flicker. Progressive scanning also eliminates color bleeding, aliasing, and most of "jitter" associated with other consumer video types.

The optical image stabilization system for still cameras uses the exposure and clarity of image capture by continuously adjusting the shutter camera to handheld shots. The Optima also has EIS—the same type used on high-end professional cameras—for a higher quality recording rate and consequently more colorful rendering.

The Optima comes with two main modes: live optical and live digital. I experimented with the live digital mode for a few days, but was disappointed with the results. When enabled, digital mode is immediately recognizable when you zoom past the live optical image. I found the feature not all that useful. However, after several hours, live mode caught its act, it captured and should be enough for most videographers.

Like conventional professional cameras, the Optima gives you the freedom to operate as needed. Any recording mode that automatically adjusts your focus, aperture and exposure settings is compromised on the side of the camera. In your choice from several presets that will compensate for extreme lighting conditions, such as choosing subject's against extremely light or dark backgrounds. The camera also has two settings that let you automatically control the priority of your aperture and exposure settings.

Canon's live film mode is implemented for a Canon Cinema video film mode. It's implemented in the manner the filmmaker places a small rectangle on the monitor when you still position over the portion of your screen that you're viewing on focus. This is compensated for when with a lot of depth of field when you want to keep either the foreground or background sharp.

Boosting spectral color wouldn't be justified if it wasn't accompanied by high quality sound. The Optima can record sound in PCM digital format for both still and video shots. It offers stereo CCD-quality sound at 16-bit or 18-bit (non-chaotic) modes, or a lower

quality 12-bit (16K) 16-bit (non-chaotic) mode that can be selected through the workstation menu.

In the compact design of this consumer, Canon has managed to pack just about every kind of post possible for broadcasting, video and other media. In addition to the included computer pads, the Optima provides 3 Video output and a FireWire port. I loaded the Optima to one of the two FireWire ports on a

new Apple G3 system to play with video capture, editing built-in tape, and controlling the camera itself. In the end, make sure you have sufficient software drive capacity. It's at least 1GB (available for download on Apple's Web site).

The Optima is powered by a compact lithium-ion battery. Although the camera has power management features, I found that turning off the workstation immediately after a shoot was a long way towards maximizing

runtime. While useful, cameras you can probably make a single battery last the duration of a one-hour shoot. However, I would recommend carrying at least one fully charged back-up battery.

#### Bottom Line

The Canon Optima digital video cameras provide a perfect example of the kind of tech.

(Continued on page 4)



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**Fujifilm MX-2600**  
Suggested retail price \$1,295  
Tel: 800-950-5515 <http://www.fujifilm.co>

Adopting a different focus factor from the models that are missing Fujifilm cameras is a lot of attention, the MX-2600 is both bigger and more fully featured than the other Fujifilm units in this grouping. Also, with a resolution of 2.3 megapixels, the MX-2600 includes a 10 optical zoom. On top of that, it has an extended 8x tele zoom, for those who'd prefer to see their own back. All in all, the added features make it a nice complement over the MX-2700, for those who want more control over their images.

- Highlights**
- 2.3-megapixel resolution is excellent.
  - 10 optical zoom included.
  - Removable lens battery (the lens is not used).
  - External lens cap.



**Fujifilm Packard PhotoLineart C200**  
Suggested retail price \$400  
Tel: 800-557-5557 <http://www.fujifilm.co>

At just 1 megapixel, Packard PhotoLineart C200 isn't exactly leading the pack in terms of resolution, but it manages to square a lot out of the resolution it has. The image quality is always good, and it comes with a zoom built in. Unlike the lens cap, the camera is an excellent choice for those who want a basic point-and-click unit with reasonably good quality without spending a ton of money.

- Highlights**
- Comes with 1 MB memory card.
  - Internal lens cap provides good protection.
  - Use lens release, the camera is neither used.



**Kodak DC215 Zoom**  
Suggested retail price \$229  
Kodak DC215 Zoom Information  
Suggested retail price \$229  
Tel: 800-445-4325 <http://www.kodak.com>

As an option to Kodak's popular DC215, the

DC215 is a more, bringing Kodak's traditional high-quality image to a more affordable price point. The DC215 standard version is a pretty basic, with 1 megapixel resolution, a 2 MB memory card and a 2x optical zoom. The DC215 Zoom version has a similar gold finish (better than the silver finish of the standard model), and comes with an 8 MB memory card, and a double telephoto zoom (with 1.8x magnification for downloading images later). Although the resolution is low for downloading units, those with a casual interest in digital photography may find either version of the DC215 a good starting point.

- Highlights**
- Features Kodak's high-quality optics.
  - Minimum order (up to 1.8x) can be done (maximum and more).
  - Removable lens cap.



**Kodak DC215 Zoom**  
Suggested retail price \$279  
Kodak DC215 Zoom Information  
Suggested retail price \$279  
Tel: 800-445-4325 <http://www.kodak.com>

The DC215 has 2.3 megapixel resolution, great optics, a good zoom, and includes an 8 MB memory card. On top of that, it has a zoom that's amazingly easy-to-use. Kodak's sports USB connectivity, and comes with a rechargeable battery—in short, everything necessary to make digital photography a pleasure, even for amateurs. As with the DC215, the DC215 also comes at low prices. The only bit of extra software carrying over, but what really distinguishes it from the standard DC215 is its built-in photo case, reminiscent of Apple's iMac. Otherwise, it's a very nice unit generally, but anything, but for those who want to try something different, this could very well be a signpost.

- Highlights**
- 2.3-megapixel resolution.
  - Comes with rechargeable battery and charger.
  - USB connector to make photos easy.
  - 2400 dpi resolution (the standard 10x and 10x photo case and some with its own computer).

**Kodak DC215 Zoom**  
Suggested retail price \$279  
Tel: 800-445-4325 <http://www.kodak.com>

Using the technology of the DC215, the DC215 has the resolution in an excellent 2.3 megapixel. The DC215 also has Kodak's excellent zoom system, 1.8x magnification, and comes with a new rechargeable battery and charger. To make this camera's higher price point, Kodak has included a 20 MB CompactFlash card (and the highest quality card currently shipping in a standard box with any camera). While this camera does what it needs to do, it's a bit more to the point and the price of other higher-end Kodak cameras. Despite the drawback, the DC215 also includes pictures and makes a good choice for a more demanding user.

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## Understanding digital camera storage options

CompactFlash, SmartMedia and iBM's microdrive

**A**n important consideration when purchasing a digital camera is the size and cost of removable storage it uses. It's all well and good to be able to store a digital camera's memory card, but if the card has a small capacity it can quickly become an annoyance, forcing the user to download images to a PC after taking just a handful of shots.

With the new generation of higher-resolution digital cameras, this issue has become even more pressing. Photographers who plan to take a lot of shots at the highest resolution will need to make sure they get all the memory they need ahead of time. There's nothing more frustrating than running out of space on your memory card just to something interesting is about to happen in front of your lens.

These days, most cameras make use of one of two kinds of storage: CompactFlash and SmartMedia. (Many cameras appear to be the big exception, making use either of floppy disks or Sony's old Memory Stick technology; both technologies have since been abandoned.)

CompactFlash and SmartMedia are both small, solid-state technologies. Typically, camera manufacturers prefer to use one of these after their entire product line, and they often use their own name to label brand-name to their own name to add distinction to their cameras line.

### Think Smart

Although CompactFlash has the edge in North America, Tool-free SmartMedia is better than the most popular format on most of the world. SmartMedia is thinner—memory cards are less than 1 mm thick. This allows manufacturers to design cameras bodies that are exceptionally thin. Data on SmartMedia can read via external readers and PC Card adapters. Because this media is so thin, floppy disk adapters, which can be inserted into standard floppy drives, have also been developed to let you transfer SmartMedia data.

The first disadvantage with this technology, however, is that the cards may be less durable than CompactFlash because the memory area is exposed on one side of the card and may be subject to abrasion (or fog invasion) and removal. Most pressing for many critics of the SmartMedia format is the current 32 MB cap for the cards, although cards up to 128 MB are available by waiting in the prototype phase and manufacturers are hopeful that they'll ship soon, they're still not available.

### Compact to help

Thanks to CompactFlash technology, on the other hand, has worked around in terms of capacity, with 16-MB memory cards already shipping, and 320-MB 16-MB cards available (a double-width format, although the format hasn't made it easy

in many consumer cameras yet). Even with today's highest resolution digital cameras, 32 MB is a lot of storage space, allowing more than 100 JPEG captures at the higher-quality settings. What users would probably run out of battery power first!

The bigger problem with CompactFlash is its larger physical size. Although it's not going to be a first choice for most digital camera users, some that accept CompactFlash models are increasingly slightly thicker. (It would be much harder to implement an ultra-compact design like Fujifilm's MX 2500, for example.) It's used CompactFlash cards to be full, most cameras using CompactFlash media don't noticeably differ from their SmartMedia-sharing counterparts.

Cost wise, the two technologies appear to be running neck and neck. At 32 MB, the highest capacity shared by both formats, both had a street price of about \$200 to \$250 per card at the time of writing, it will be interesting to see how the pricing moves when both formats are available in 128 MB versions.

Although the CompactFlash technology was created by SanDisk, other companies market the media under their own names. One (Lunar Media; <http://www.sanDisk.com>) offers what "branded" CompactFlash cards, which have faster write speed and USB compatibility.

At last, a better way to look at the 40 MB Digital Plus package, which comes with the jumpstart USB connector cable, allowing users to plug their CompactFlash card into their PC and read/write as if the card was an external hard drive. The 40 MB card and jumpstart bundle are available at a street price of roughly \$200. The card's higher capacity makes it a great addition to any digital camera's hard kit.

### A drive for storage

A new entry into the world of digital cameras is a solid-state memory device. The use of a small "chip" in the spring is interesting, as IBM hopes this form of storage will catch on, and the name will become a generic term. Slightly unclear then, CompactFlash cards but using the Type II CompactFlash form factor. Its memory is a mechanical hard drive, and is currently available in 178 MB and 340 MB capacities.

Cameras with a Type II CompactFlash card can use both standard CompactFlash cards and the innovative microhard drive. Those who choose to use the microdrive will be able to store hundreds of photos at a camera's highest resolution. Like SmartMedia and standard CompactFlash, its memory can be used in other contexts, from handheld PCs to MP3 players, and more. Current street-level pricing for a 340 MB microdrive is around \$100.

—Sean Callahan

### Highlights

- Compact 2.1 megapixel resolution
- Cards with ultra-compact format and storage
- USB interface to host system for transfer
- 32-MB CompactFlash card included

### Kodak DC280 Zoom

Suggested retail price: \$1,545  
Tel: 800-445-5321; [www.kodak.com](http://www.kodak.com)



The DC280 Zoom is a big camera in a small box of steps, it has a lot of features (Outstanding audio), 2.1 megapixel resolution, a 20-MB CompactFlash card, and a lens that allows the user to get a good grip on the right side of the camera. It comes with the 16 optical zoom, between both LCD and infrared zoomer ability, and the shutter can be kept open for up to 16 seconds. For those who like their live-action snapshots, images can be saved in TIFF format, but a higher priced camera that is better suited to professional users than casual users, but even the latter will find it easy to use.

### Highlights

- Compact 2.1 megapixel resolution and 20-MB card
- Resolution can be locked to 3.2 megapixel through software's resolution
- Auto-recording capability
- 20-MB CompactFlash card for extra storage
- Ability to save images in compressed TIFF format
- LCD viewfinder for monitor
- Control with individual buttons and zoomer
- Outcomes include images taken in Portrait mode are stored in each of the camera lens



**Minolta  
Damage EX 1800  
Zoom**

Suggested retail price: \$550

For the DC280 Zoom, <http://www.minolta.co> says it's a "miniature" little unit with a number of interesting features. As with the previous model, the Damage EX 1800 has features a reasonable lens, which can be attached to an optional extension tube. The 1.5 megapixel resolution delivers high-quality images, and the zoomer's design can be a big time-saver for those who take a lot of photos in Portrait mode. The camera's auto-focus in the outdoors allows a lot of "zoom" to achieve new pictures, of course don't want to use for the outdoor day.







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Patron: 2014-01-01 10:00:00

Logitech Quickcam V-Camara	159
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Maxtor CDR 50pcz Spindle	549

Home Officer	Super7 Monitor	RTTI Routemap	RTTI Commanders	Drummer - Attack Unit
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Year	Percentage of respondents
2006	65%
2007	68%
2008	72%
2009	85%
2010	82%

1000



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4000	Power Supply / Power Bar	3/4
4000	4000 Cable with 2 or 4 P Connector	4/10/100
4000	20000 1000 VOLT Cable	200

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Executive Director: \_\_\_\_\_

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**It's a deal!**

Compared from page 11  
21 megapixel resolution and can use film at unprocessed 1787 frames. For those who want high quality output with a zoom window all the video higher and better, the CinePro 400 is a nice compromise.  
Highlights  
• 21 megapixel resolution and high-quality film  
• 1787 frames



- 2x optical zoom
- Capable in unprocessed 1787 frames
- Shuts with 1600x240 2.5 Linear Filter

**Nikon CinePro 400**

Unprocessed film rates \$1100  
100-120 FPS (1600x240) zoom  
For photographers looking for high resolution, zooming optics and zooming Nikon's CinePro 400 is a great choice. The 2.1-

## The proof is in the printing

Comparison of prints from digital and film cameras yields surprises

**W**ent into the digital camera last Test with the theory that when presented with digital camera photos, viewers' preconceptions of how digital photos would compare to film photos would be shattered.

To test this, we printed samples from each of the digital cameras in this month's Test and sent them to print and about 20 staff members from other departments at The Computer Paper to judge them. To pass or fail the output from each camera, and to select and rank the top five favorite photos.

The digital camera photos—think it might make sense from each camera—were judged on color, contrast, sharpness and the same resolution, using the same output settings, and on the same paper. Not an ideal test, as it was a bit of a photo quality test with a professional quality 35 mm film camera and printed by a professional photographer. The results weren't as clear-cut as we had expected.

- The conventional photography prints gave the most fair view but for the majority of those who didn't look at conventional prints as their main output, they didn't rate as the top five photo.
- Prints from 18 of the digital cameras appeared in at least one person's top five photos.
- Twenty-two of the digital cameras were rated by at least one person.
- Two test participants ranked the conventional photography

What was the all-around? For the most part, photography is a matter of personal opinion and personal taste. The output preferred by one person may not meet the grade for someone else. For that reason it may be a good idea to request more printed samples when considering the purchase of a digital camera, to make sure your tastes are compatible with its output.

What is clear from this photo-test was that the age of digital photography is young. So many of our voters were impressed with the quality of most of the digital cameras—again, however, 35 mm film cameras, which were more improvements in digital camera technology (not around the corner, as it often is to be an even more exciting). Thanks to Nikon for the use of the Nikon 400 and to Kodak for the use of the Kodak D110. Both of these cameras had great performance in making the conventional images.

—Steve Korman

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holding the electronic storefront  
Continued from page 19  
It's partially due to not much initial investment.

"It is a real word-of-mouth," suggests Brent Hufschner, president of Midwestern Software Inc. in Peotone, Ill. "In the U.S., it helps that Internet usage is the most advanced technology has been developed in the U.S. there is just a lot more focus about the industry."

But a more fundamental issue may be one of cost and education. While many have noted the business necessity of getting online, the cost of doing so can be prohibitive in small and medium-sized businesses.

A recent study conducted by researchers at IDC's U.S. headquarters in Framingham, Mass., found that while the Internet economy will grow to more than \$100 billion in 2001 and up to \$250 billion by 2003, the key factors for small-business wanting to cash in on the

boom will not just be getting online, but getting the necessary infrastructure in place to do so. And that infrastructure is not cheap or very easy to put into place.

In order to make this problem, Hufschner-based Strategic Profile Inc. offers small and medium-sized businesses a turnkey package that helps them create an online business relatively easy and quickly.

"It is an easy-to-use product that costs about \$700, and which gives businesses about \$1,000

worth of tools," says Catherine Clarke, president of Strategic Profile.

The tool gives a business access to a secure shopping cart or order system, real-time Web payment customization system, instant mailing tag, and e-commerce training and support.

Clarke says the system was a very simple matter of helping small and medium-sized business make a successful web site—a success by helping them understand what they should be looking to get done. She says that when she speaks at various e-commerce seminars around the country she is asked to do much by how many people say they want to get online, but how few are actually doing so in the U.S.

"If they are serious, they need to make business and marketing strategies based on their objectives and goals," Clarke adds. "Often it speaks to an audience, who is speaking to only about the present of the people in the audience have put together a business plan and marketing objectives based on their goals. They really have no clear why they are putting up a Web site."

#### Expanding the word

Education is one of a growing trend in the e-commerce industry. Industry leaders a few years ago it was simply enough to create a set of tools for getting a Web storefront up, it is now just as important to teach people what to do after that storefront is up.

Sherrill Staud, general manager for the Montreal, Que.-based Miralux Group Inc., says consulting work is one of a big part of the e-commerce business, as the clients most companies trying to understand how to successfully start up and run as an e-commerce site.

"What we have been developing a method along the creating a Web strategy that will get a consistent between the performance and marketing people, the technology people and the production people," says Staud.

The methodology allows a company to clearly identify its objectives for getting a site, find out what kind of e-commerce infrastructure it needs to achieve those goals, and what design it is required to make to be most e-commerce savvy.

While this kind of education may sound like something only large corporations can afford to do, Staud says her clients with very small companies and start-ups in the consulting practice.

"You need to have a concrete plan that will get benefits before the shareholders, or investors, or just the owners," Staud adds. "That is why you are using some [e-commerce] strategies and put understanding the methodology needs, but also the business needs as well."

#### The missing link

Continued from a when Ross Medium Canada Inc. on benefits often in small and medium-sized businesses often. Not only does it help clients create a more successful, it offers a consistent solution that can comprehensively reach a company's national markets.

At the same time, Ross Medium can bridge an important gap that often existed between the home and Web storefront, with its order taking capabilities, and the back-end processes that allow a business to fulfill its orders.



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Small Business Plan		1	1	100MB	100MB	4	1	\$99
Small Business Plan		1	1	100MB	100MB	4	1	\$99
Small Business Plan		1	1	100MB	100MB	4	1	\$99
Small Business Plan		1	1	100MB	100MB	4	1	\$99
Small Business Plan		1	1	100MB	100MB	4	1	\$99
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# OS 9 advances the Mac platform

Continued from page 106

key. This will tell the Mac to use the CD-ROM as a startup disk until the installation is finished. With a few more options enabled (such as speech recognition), to advance to the default installation choices, it took about eight minutes to upgrade a 300-MHz G3-based PowerMac, and about 20 minutes to upgrade an iBook.

One of the first things I noticed shortly after the upgrade on both machines was that the Apple menu was conspicuously absent. Close examination revealed that on *both* new machines, it seems that the installation process removes older versions of Apple CD Audio Player, Apple DVD Player, Apple Video Player, Apple Web Player and iMovie, placing them instead in the rest of the Applications and Apple Extras folders. To remove all of these items is the Apple menu, you can't create aliases and drop them into the Apple Extras folder.

One thing I really didn't like after an upgrade is how much more system resources (such as local disk storage and RAM) are consumed. Fortunately, OS 9 requires less—and above those of OS 8.6—new 32-bit systems. These upgrades may vary depending on how your system is set up, but with normal memory enabled, the size of the System folder only increased by about two percent, while the RAM requirements increased by 15 percent. However, if you do more than word processing, sending email and Web browsing, I'd recommend that you have a minimum of 56 MB of RAM installed. This is especially true if you

have one of the newer Macs with the new ROM—4-GB RAM architecture.

## Shelf life

Shelf life is critical in Mac OS 9.2, where it was an option for Sherlock 2. In the case of misadventures and refinements that make searching your local storage, network volumes and the Internet even faster, more and more enjoyable.

Apple dropped Sherlock's ribbon folder interface in favor of a new of channel buttons that categorize the type of search you want to perform. Starting from the left side of the view, you can choose to search files or more local or remote volumes for files based on name or content. One really useful new feature is the ability to use drag-and-drop to search in a site accessible via a pop-up menu—which means you don't have to create the search each time you require it.

Moving to the right, searching the Web has been broken down into a series of channel buttons that define a specific category of search.



Sherlock 2's Search Channel

In addition to the installed search plug-ins (such as AltaVista, Excite, etc.), which are grouped with the standard Internet channel, there are sets of specialty plug-ins grouped with channel labels: People, Shopping, News, Reference and Apple Web. Sherlock 2, you can also create your own channels to suit your organizational taste.

One improvement to Sherlock is an order face is that it no longer opens up as a window for every search result. Instead, it lists hits within the Sherlock window, while at the same time changing the result columns heading lists to reflect the content of the search. For example, the Shopping channel will show price and availability, whereas the People channel will display columns for email addresses and phone numbers.

Sherlock 2 has tremendous ability for Web searches, however, it will have to depend on third-party development of additional plug-ins (the channels such as the Shopping, People and Reference) to further its usefulness. For example, it has only three LDAP server plug-ins (iPhoto, iPages, iPhoto II), which only fits in the scope of a people search.

Overall criticism of Sherlock pertains to the erratic look and feel, due to the QuickDraw Plus style set in 4.1. It is not the first person with concerns about the new direction Apple is taking. In fact, there has been a stream of customer online e-mails concerned about the interface.

It doesn't take a rocket scientist to see that this new computer upgrade is deteriorating one of the Mac's greatest traditional strengths—the consistency and clarity to begin with, the flat

erratic look of Sherlock and QuickDraw makes it hard for the user to quickly and easily distinguish the control elements. For example, the channels and the window menu have the Mac OS 9 standard appearance. This doesn't always contrast correctly with the rest of the interface to they are inconspicuously recognizable as elements that perform a function.

Furthermore, the Sherlock window is missing a close box and a windowable control, which are elements found on all other Mac windows. I could go on describing other details with the interface design, but others have clearly seen this and the same is likely. Hopefully, Apple is going through an experimental phase and will recognize the shortcomings of this new "look and feel" approach.

## Multiple users



Multiple Users dialog box

Back in the early '90s Apple came out with an application called *AltEast*. This program had a

Continued on page 110



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# OS-9 advances the Mac platform

Continued from page 136

simplified file structure way of creating a multi-user environment with security privileges. In situations where one computer is shared by several people, such as at home and in schools, At Ease became a popular utility.

In OS-9, a more sophisticated multi-user capability has been more clearly integrated into the system. By default, the multi-user system is turned off until you perform an authentication.

The Multiple Users feature breaks down user classes into three basic categories called Normal, Limited and Power, all of which have checkable controls that allow an administrator to stage user privileges. Of course, when the normal user is first opened, the machine's owner is presumed to have full access privileges. As you would expect, you can't get global root system in addition to specific user permissions that enable an owner access to various system components, local and/or remote volumes, applications, folders and documents. Each user can even customize the system's look-and-feel via the Appearance control panel, so that the desktop design changes depending on who is using the computer.

In addition to trying to be a user personal, users also access a computer through OS-9 with a more personal OS-9 environment through the user personal person by making their own sample of a customized system phase. It then homesteads over the sample to profile their workplace. While this feature has a high overhead factor, I found it wasn't 100 percent reliable. Occasionally, I had to say the phrase

second down to gain access to my account. If you use this feature be prepared to resort to your typed password to access.

It is tempting to say that Apple designed the personal architecture to be similar to third parties could allow new lines of extensions through drivers such as a remote or fingerprint scanner.

There are most other rough edges in the Multiple Users feature that Apple and other application developers will have to smooth over in upcoming releases. One of the most glaring is the omission of a personal version file field as the window for creating new accounts. However, as you type in the password, such checks appear as a barrier, so you can't create what you've typed in. If you make a user while creating a new account you'll learn about the user and to specify the privileges when you can pass what you type you.

There is also another security loophole in the ability to bypass the Multiple Users setup using a master CD-ROM during the booting sequence. Also, external applications and user files do not become available (or get themselves out) in order to release to users that they don't have permission to use them. Instead, users have to try to open a file or application—and get a message declaring that it is forbidden—to find out that they don't have access. Lastly, some applications (such as Adobe Photoshop) don't support the creation of Multiple Users preference files.

## Keychain and encryption

There has been another security feature

built into the security and privacy areas that will become prominent as the Internet grows in use and influence. The Keychain is an added security layer to the user's Keychain data. This has been injected into OS-9. The Keychain



Keychain

is a master password in which you can attach multiple passwords that you accumulate during the course of your workflow—whether they be digital certificates for services, applications or Internet resources such as passwords for Web pages. The Keychain control panel uses an interface menu which you can drag items such as URLs, files and network volumes.

One of the beautiful features of the Keychain is its portability. Consequently, you can copy it to a disk, or send it via a network to another Mac, so you can access your full set of passwords wherever you go. Since this is a security feature, you'll be doing password is done by simply acknowledging here to properly use this powerful tool. It is important to remember that if you happen to lose your Keychain accidentally unlocked, other users will have full access to the items your passwords protect. However, it is not clear

the unauthorized user is able to use the actual passwords in the Keychain. As well, you can specify that your Keychain automatically locks itself after a specified period of time.

Another find for the Mac OS-9 is native support for Bit encryption. Using these features contained under the Finder's File menu automatically launches a new application called Apple File Encrypt. This application can create a file set to encrypt and compress your files, along with a default option that enables direct password to your Keychain. The only drawback in this feature is that you can't encrypt multiple files at once. It would be nice to be able to encrypt a whole ball of items at one time.

## Software suite update



Software Update window

Like Multiple Users and Keychain, Software Update is also portably implemented as a control panel interface. Currently, this pro-

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# The 'best' of Comdex a subjective thing

## TCP's tech guru scours the halls of Comdex Fall/99 and discovers a difference of opinion

By Jacques Surwyer

The Best of Comdex Awards are based by the US publication PCWeek magazine. It is a magazine of which Comdex awards are an up-to-date and for best technology in their specific areas of expertise.



In PCWeek's Best of Comdex Awards, because in past years Comdex, puts on the Comdex show. It is certainly a first-of-its-kind event in providing pre-show help as an on-site staff based on computer products in. Monitoring some of the best hardware and software products on display. Nevertheless, it is interesting to compare PCWeek's picks with my own.

### Best networking hardware

PCWeek's winner, Microsoft's SpiderTracer SpiderTracer for Windows is a network management tool. Jacques Surwyer, NetGear's Home Premier Network Adapter allows Microsoft's Windows 95 to use existing home telephone wiring and enables telephone calls.

Best desktop, mobile or handheld system  
PCW 244 D, Apple's iMac G4, which combines video, audio, keyboard, mouse, USB, FireWire and other features in a sleek design powered by a 600 MHz Pentium III, and priced at \$1,999.99.

Best personal productivity software  
PCW 244 D, Microsoft's Office 98, which combines word processing and email software in one package, and priced at \$199.99.

### Comdex opens source projects

Comdex Fall 99  
The chief organizer and moderator of OpenBSD is Theo de Raedt, who serves as the central figure for the OS in the open source community. He is the author of the book "OpenBSD: The Open Source Operating System" (No Starch Press, 1999). He is also the author of the book "OpenBSD: The Open Source Operating System" (No Starch Press, 1999).

OpenBSD is a free and open source operating system. It is a Unix-like operating system that is designed to be secure and stable. It is a free and open source operating system that is designed to be secure and stable.

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version of Linux is available and it can run on Windows platforms too.

Best enterprise productivity software  
PCW's "Multimedia Edition" is a based Web-based system of customer relationship management (CRM) available.

It is the Office from a Web-based world providing applications, presentation software package that runs on Linux, OS/2, Solaris and Windows 95/NT. The Editor is also the first ever free, has a Java portal, and runs Microsoft Office files.

### Best new technology

PCW's "Multimedia Edition" is a based Web-based system of customer relationship management (CRM) available. It is the Office from a Web-based world providing applications, presentation software package that runs on Linux, OS/2, Solaris and Windows 95/NT. The Editor is also the first ever free, has a Java portal, and runs Microsoft Office files.



Access the Computing Tablet

Best networking software  
PCW's "Network 5.1" adds FTP, IM, WebPages, NFS, etc., and even internet to a top network OS.

Continued on page 24

A number of corporate sites are beginning to use Linux and OpenBSD systems, using OpenBSD for gateway and firewall. OpenBSD is a free and open source operating system. It is a Unix-like operating system that is designed to be secure and stable. It is a free and open source operating system that is designed to be secure and stable.

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**The best of Canada's subjective thing**  
Continued from page 118

**OS:** Novell's eDirectory (range: NOS4.0 and LDAP) is the top placeholder, 2/1 and Novell.

**Best peripheral**

**PCW:** Sony Matrox (256 MB: 81 mil color LCD screen is 127 cm (50-in.) thick and can go to 1024,000  
88: No pick.

**Best Web development software**

**PCW:** Ultra Website Site build tools from using and licensed with various later-  
[OS: Macromedia's Dreamweaver 3 plus Dreamweaver 2000 (range: database Web site is the winner

**Best utility software**

**PCW:** Cyberlink's InterVideo 1.0 provides  
SAL MP3 (700 and other media in download  
88: No pick.

Despite extensive searching both the bands on 810 Las Vegas Convention Center at last week, we only allow some spread out pick that decided PCW's list of Connetix winners. In addition, I simply did not have any picks for two categories best peripheral and best utility software. Finally, two of my picks were not even considered as possible finalists by the JCMed judges (Cool Open Games, Novell's eDirectory, last's Site Office,

and Macromedia's Dreamweaver 3 plus Dreamweaver 2000) I'll do that of even meeting the list of finalists.

Of course, that is the limitation and last of Connetix. We'll not be able to open the task and/or tools as they emerge as a show that will attract a wide range of next up as well as essential hardware and software final list or learning to note how many of our picks are for networking, and not technology technologies.

Only one of my picks (InterVideo DVD compression) and two PCW picks (Windows Macromedia's Super Encoder and InterVideo's Dreamweaver) can be thought of as being up, but the rest are more obvious in making hardware or software categories. There were finally featuring hardware, best



Cool Open Games

hard, available, and computing appliances along with new hardware and software (AL)

and emerging mobile solutions, however, many were postponed or failed the goals of category defining products.

**Commentary**

Moreover, our problems David Valerick has exposed, reflecting that software companies and their range of capabilities of hardware, and that the last frontier of IT software are being called, asked and developed with the most fundamental governing systems of the business. After the problems of these systems are resolved, the next software will reach a phase meeting breakthrough in critical intelligence, human interaction, and technology, which is time will repeat a new opening in software development.

Others agree that software opens and bettering, large-scale modeling and simulation, low-resolution, artificial plus dynamic, and many algorithms will provide plenty of pick for software and hardware development to emerge and work on for the next decade.

This writer tends to favor Valerick's arguments that if one of thousands of well-motivated and very experts cannot agree on an issue period, the impact of T2X on the world economy, when large is there for the application on the pace and direction of connected hardware and software development is the best of Canada, the best we can hope for." (2)

James Sweeney is a consultant and writer. He can be reached at jsweeney@compuserve.com

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—David Tardif

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**Online banking: how we got here**

Continued from page 111  
small financial software companies could meet benefit from easy maintenance and analysis of their daily transactions.

The result? Many Canadian financial institutions suddenly found themselves considering creating the personal financial software business to build a product that would only

work for their customers, offer limited functionality, likely used, constant upgrading, and would never make any money.

The financial institutions didn't want to see a personal financial software program, like Quicken, as their first and their number of reasons. One was the fact that they would thus be severely constrained by and have to be dependent on, an independent, free-for-all, software startup. Fortunately it turned

out they didn't need to build or buy a first one. A new software service and it was over the Internet Internet.

As the Web matured, its security improved at the same time as Internet functionality improved. Over the last three years, the options have opened such that about 100,000 banking is done via the Web. Some institutions have built private network-based customer access and Web access, but the former is fading. So

is the old, brick-and-mortar system has been merged to offer customers access to their banking information, while providing a higher degree of software, opportunities, upgrades, and access problems.

**That's not all, folks**

The story doesn't end there though. What about personal information software?

Although the banks offer some limited financial planning/management, however, it's the computer Web site, the Internet and online functions are so much for a dedicated, money-management program that resides on your computer's hard drive.

In an attempt to begin bridging this divide, an initial initiative has finally managed to gather some industry consensus on a standard. The Open Financial Exchange (OFX) specification defines an export and import format for the exchange of information between financial institutions and software programs. After a long battle, many banks, credit unions and others are finally adopting the proposal.

In Canada, 20 institutions currently support OFX—from a number of large, high-profile national banks like CIBC and TD to provincial or regional credit unions, such as, Credit Union Atlantic and the Savings and Credit Union of British Columbia. The development is the last link between customers and their financials. Now that most of Canada can have the ability to download their account information into a software program like Intuit's Quicken, the information has arrived in real time, the way we deal with such transactions.

The whole idea is to not complicate it as much as some institutions allow you to download credit card transactions into month-end and mortgage data, while others do not. However, the consequences of some personal financial software, your online banking data, and the rapidly growing marketplace of money-related software and online offers some promising developments.

**Competition breeds innovation**

An example of the unbelievable things that can happen as we go from a world of bank deposits (where we could) to a new one, a new economy (but the better result), to a world where we will have our financial record better than the institutions, can be seen by looking at President's Choice Financial. The new financial institution comes to us from a grocery store chain that has extended the services of CIBC.

The lending branch has all the services most of us want (mortgages, chequing, credit cards, debit cards, and ATM), as well as a grocery store, a big customer loyalty "power" program, all tied together with an online banking site that offers us the online transaction. If anybody is only looking at about this, look no further. The Canadian branch has not only new services, but also the big question: Will President's Choice Financial's acquisition for policy success and, if so, catch up to the big banks, but considering the success of the bank in the financial services and for additional access to lower the account, it is possible.

One thing is very clear, the rapidly changing, online financial system infrastructure is empowering consumers and making the power that are generating it.

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Continued from page A12

dialogue box and dropping it onto the next set-forming icon. If an option can't be used as the map, you won't be able to drop it; if it can be used the formatting will change to reflect your new choice.

The usage of the facet map, shows the Value Shading format. In it, each province is shaded according to its population—which is the data in the first data column (column B). You can alter this formatting in Category Shading by dragging the Category Shading window from the left of the dialog and placing it on top of the Value Shading icon at the bottom of the screen. The Category Shading format makes each region a different color.

Other formatting options include Doc Density, which could be used to show the sales figures for each province, with higher doc densities reflecting better values.

When you have two or more data subseries, you can often by the simple way provide chart types rather a pie or a column chart. To create a meaningful pie chart you'll need at least two related data columns that, when added together, give you a 100 percent, or whole, part of data. For example, you could compare the proportion of males and females in a population, because together they represent the total population. Or you could compare the sales of sales of widgets to existing customers and to new customers—two groups that make up the total.

wedget continues here. However, comparing populations in wedget sales would generate meaningless results—the two groups of data don't add together to give a "whole" anything.

A column chart requires a minimum of four tables of data and overlaps each row or group with a column forming the grid.



Google Pro's mapping allows you to plot out a set of dots by address and another using outlines.

of the data for that region. The Graduated Symbol format shows a variable-sized symbol in each region—the larger the symbol, the larger the value in the data column.

### Assessing the seasonal data range

To alter the map to show both data ranges, you'll need to add the second data range. To do this, drag the second data range name

From the top of the the Map Control dialog into the Column area of the box and drag a formatting unit from the left of the dialog into the Format area next to the name of the second data source.

Not all formats can be used together on a map. If a format cannot be used with an existing choice, the format will appear disabled and you will not be able to select it.

If you realize it's time you can pick up any data source or the matching update and drag it out of the box to drop it in. Close the Map Control dialog box when you have selected all the data references and map locations and return to your spreadsheet by pressing **Escape** or by clicking a cell outside the map area. As a map is an embedded object, to alter it, simply double-click on it to start up the Microsoft Map application.

File names may vary

Once the basics of your map are complete, you can fine-tune colors, patterns and placement by moving the various elements around with your mouse and steering them using their steering handles. You can also collect by selecting the legend, right-clicking it and selecting **Info**. You'll find the toolbar that appears when your map is selected has a number of other options for changing and editing your map, including placing pins to fix weak points of interest and adding labels and text.

For example, click the **Map Labels** button to add province or country names and your course will change to a test that containing a label that will change to the current province name as it moves over your map. Click where you have it in position, then add the next label—your images to turn off the label option.

## Equation (9)

To create a map in Lotus, open your database in a smaller window to the instructions for Excel. Lotus's coding of geographic names is similar to Excel's except that it groups Northwest Territories and Yukon, but you'll find the process of researching names is quite simple, as websites are easy to fix.

When you have your data, highlight the pertinent you want to plot (include the region names and the data for them, but don't include the column headings). Select **Create**, **Map**, and click on your worksheet where the top left corner of the map is to

If Lotus can't determine the map type to use, then the Map Types dialog box will appear. If this happens, select the map you want to use from the list and click OK.

The region dialogue box will appear every time you use a region name that Lotus does not recognize. You can choose to replace your region name with Lotus' own code for the region or you can add your own name for a region.

*"Chances are Lingo's name won't be an exact match for the name you see, so, if you did it perfectly as we give our descriptions, spend a few minutes creating custom names for the region names you want to see listed on the site. An Custom Name Pop option button will watch your audio with the appropriate site at Lingo's Review map screen too! When you have reviewed all*

your expert names with the Lotus code, your map will appear on the screen. You can maintain your map by selecting the area in blue and right-clicking it to bring up the shortcut menu.

If the map you want to use isn't installed, then you'll need to install it before you can create your map. To do this, locate your original Lotus CD-ROM into your PC and follow the install process to the point where you choose between Default, Maximum and Customized features, and select Customized features. Select 1 2 3 in the Application list and select the Customized feature. Select the Map tab and select the checkbox for the map or maps you want to use and continue with the setup.

Cheng et al. 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681, 2682, 2683, 2684, 26

Put all the **Question Pro** files you need to copy into one directory when you choose a Typical installation, or choose one you'll need to install them. In its turn, load your original **Question Pro** CD-ROM and follow the install process to the point where you choose between the Typical, Compact, Custom or Raw from CD-ROM installation. Select Custom and make sure that in the **Question Pro** options screen you select the Shipping component and continue with the install.

To create your map in Quattro Pro, enter year data as you would for Excel. Quattro Pro recognizes standard geographic abbreviations as well as full names, so you may use AB, BC, NB, NR, NE, NS, NT, ON, PE, QC, SK and YT.

Select Insert, Graphics, Map and you'll be stepped through the Map Experts. In the first step you'll choose the map you want to use (eg. Canada by province). In Step 2, select the screen at the right of the Mapbox. Mouse box and click and drag the highlighting over the region names then click the Mainview button (or press Enter). Then repeat the process for the Culture data that will be the first column of data to plot on the map and repeat it again for the Income data, which is the second data column.

When you select **Find**, **Question 206** will try to reorganize the region names and, if it can't, then the **Check Region** dialogue will appear and you can match your name to the same **Question 206** user. When all regions have been matched, you can proceed through the remainder of the steps in the **Export** to add other features to your map. Finally, click and drag on bars for your map or your navigation and the map will appear on the screen.

You can customize your map by selecting the areas to alter and right-click to bring up the contextual menu.

Quadrat Pro ships with a number of files containing demographic data for many of its trap series including Canada. You can find this data in your `installprogram\Demographics` folder and you'll find Canadian data in the file `Canada.txt`. This and the other demographic data files are useful for providing you with the codes that Quadrat Pro uses for the nation or its state(s).

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**Web development requires mixed skills**

*Continued from page 112*  
or introduce it to sell their goods without being concerned about shipping costs or difficulties. Boregon even has been like a local buy-and-sell agency or classified ads, except that it is an auction site and is supported both by commercial websites and individuals.

For a Web site, which has no easy sub-Web sites and constantly changing content, to be suc-

ful is both intense and new. Web traffic, it seems to be well engaged and easy and efficient to navigate. This is where Ouel, who has a background in journalism, steps in. She creates content of content and organizing the tongue-twisting jargon in consultation with the site's producer. She works with a team that includes programmers but only studies some with a number of skills and needs to juggle all of them. Several found sites and have an interest in a team effort.

While Ouel is in the front lines of Web development, Thomas Drouot has found opportunities both in the front and in the background. Drouot is employed by TTT (Intermedia Technology and Training) in Laval, B.C., where he designs and implements Web sites, and also teaches others to do so as a certified instructor for Sun's Java 1.0/2.0. Most, Pro Web design software. But quite often he also teaches as a coach for indi-

viduals and small businesses that want the basics on experience of designing their own site but need a bit of help with the finer points.

He feels that the demand for web design has mushroomed in the last two years, which should allow continuing employment opportunities. According to Drouot, while most people did not trust the Internet enough to buy online two years ago, today they "have gone crazy for it." He says there is a push to embrace the new technology just as companies have increased productivity in house and for business, the Web, more Internet-based sites, and networks are doing the same for businesses, academics and individuals.

Most sites are a team effort involving not just Java script or CGI programmers but also people doing graphics, production and writing.

Drouot also sees considerable opportunity for business, government or university networks. Networks are seen that use Internet resources and technologies like TCP/IP or HTML, but are restricted to a smaller community of users.

As for advice to anyone who wants to get into Web design, Drouot suggests that one also see, like Boregon.com, a team effort involving not just Java script or CGI programming but also people doing graphics, production and writing. The team also must specialize in various aspects of the Internet, including the tools of these web-based training in their field.

The point is that you need to be flexible as your training options and bring several skills to the team. Drouot says he is reluctant to tell anyone to enter just as a Web designer because in the industry some of the most valuable, a range of flexible skills will be necessary. Just the bottom line will come in the next few years.

*Continued on page 122*

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### Top 10 computer books of 1998

*Continued from page 128*

is still a few glimpses into life and times in the mid-90s in the late 1990s.

### 10. Beginning Active Server Pages 2.0

Author: Mark Maclellan, Jeff Gaffner, Alan J. Little

Publshr: John Wiley

Publshr: 0885-347

ISBN: 0885-347

Pages: 322 pages

Price: \$24.95

It's not surprising that one can simply jump into a new programming environment without at least some instruction. Beginning Active Server Pages 2.0 is a total guide to the beginning ASP Web programming, starting from the very basics and working on up to building robust Web applications. It should be pointed out that the subjects covered in this book are very basic—perfect if you have and are programming knowledge, but it may be a bit on the side for those with some experience. On the whole, an excellent guide for the true ASP beginner. **C**

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# The brain drain

Companies need to focus on internal culture to keep talented employees

By Tom Ichniowski

While debate rages over the value—and even the existence—of a so-called brain drain of technology workers to the U.S., Canadian high-tech companies are realizing that they'll experience a brain drain as a corporate level if they don't find better ways to reach out to high-tech graduates and create a challenging, exciting environment for them to work in once they've been hired.

## Brain drain debate

While the Toronto-based C.D. Howe Institute blames Canada's tax system for driving away 41 percent of recent graduates in science, medicine and management out of the country (a figure frequently echoed in the popular press) and even bemoans Statistics Canada's ongoing highly educated Canadians are leaving the country in droves, and whatever losses there may be are outweighed by the benefits of highly educated and technically trained people coming into the country.

"There is little statistical evidence to support a claim of a large scale migration of knowledge workers from Canada to the United States,"

according to Statistics Canada's Scott Murray, who presented his research at a 1998 forum on whether a brain drain to the U.S. exists.

"When you look at the high-tech industry in Canada, as opposed to the Internet or e-commerce [sic], the reason why American companies are taking Canadian high-tech graduates is diligence," suggests Erik Elton, director of the R.C. office of the Canadian Centre for Policy Alternatives in Vancouver.

And others suggest if graduates are leaving Canada it has more to do with the lack of job environments that U.S. companies are offering Canadians.

All Ichniowski, regional vice-president for the Toronto-based Information Technology Institute (ITI), says some graduates from his college have been hired to the U.S. by the higher salaries, but some others is the greater job support and continuous training that is the inducement to move.

"We keep hearing that people are leaving because of the financial benefits and the structure in the U.S.," Ichniowski adds. "I don't think that is the whole reason. The environment is absolutely critical, not only the working environment, but who you are working for."

Ichniowski suggests high-tech workers and graduates want to be in environments that are not only challenging but where their contributions are appreciated. Making them feel they are stuck in a back room, or are simply reduced to taking care of a couple of servers or computers, is a sure way to lose them, so senior how much money they are being paid.

## Keeping employees interested

Christine Richards, associate vice-president/manager for the Toronto, Ontario Group (TTG), found after graduating from ITI that many employees were not doing enough to attract or keep skilled graduates like herself. Others she and her classmates were offered unchallenging jobs, so the companies showed little interest in helping them they did have continued to upgrade their skills as technology changed.

"[Compared] first, certainly at the introductory level, that we are pretty much a done-it-for-us and they don't really let us into the core, and they don't have time to appreciate us as much because there will be others coming along," he adds a little.

TTG recognized that when it launched less than a year ago, it's a startup company that

develops high-end business-to-business and business-to-consumer applications, so knew it could not attract graduates and high-tech workers by offering high salaries. Instead, it offered employees an environment in which they could have new technologies, and in which learning was encouraged to help employees understand new technologies and expand their skills.

Nonetheless, ITI, DNA Media Services Inc. similarly encourages its nearly 50 employees to master each other in the technology and progress they do in order to better an environment where they are constantly challenged. ITI's business computer solutions for large markets in Asia and Europe, and known technology workers are willing to move to a different company if they feel they are not challenged or supported in their work.

"Creating a good working environment is one of our top priorities... and can outweigh how much you are making," says Mike Richards, business development manager for DNA. "We have regular meetings and seminars that people put on because it is impossible for everyone in the company to do what everyone else does. But having a

Continued on page 133



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#### The best deals

Continued from page 122

knowledge of what other people's jobs are and how it affects the projects we are working on is important."

#### Role of educators

If Canadian businesses need to start changing their negative culture to find and keep valuable employees, Canada's high-tech colleges and training centres also need to start doing more to hook up their graduates with interned firms and opportunities. "So many times, colleges and universities offer little support to graduates once they finish their courses, leaving many struggling in real work."

CIT president Doug Moseley says his old employer held a graduation ceremony that featured speakers and students from Canada's high-tech sector and was an opportunity for some informal networking. CIT also goes a step further by having 45 employment specialists on staff to help students meet high-tech executives and employers.

"I don't know of any college in Canada having 45 employment specialists working on their students' behalf," Moseley adds.

Businesses are trying to get ITT's great-

ness and Canadian technology companies together by creating a networking program and having companies offer to pay a part of a student's tuition in return for the student doing work for the company.

Stanford's Hitt, who works as a network administrator for the Town of Pickering, Ont., supports companies should also be looking at hiring students while they are still in school in order to foster better relationships

and to give them the opportunity to get valuable work experience before they graduate.

"My choice is not to go to the U.S.," de Silva adds. "Employers in Canada could do better to offer training as the person can grow with the company and I think flexible hours and more time off would be good working trends. There are things they can do other than working people to the bone." □

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# Guides to ASP

WROX targets beginners, O'Reilly aims for more experienced programmers

By Keith Stachurski-Roberts

**A**S IF Active Server Pages is a means of delivering Web page content on demand through Microsoft Internet Information Servers, many professional Web masters are turning to developing sites using ASP-based Web servers—or other, similar systems such as Allaire's ColdFusion—in order to deliver highly customizable and dynamic content to their users. In most Web servers, the client requests a Web page, and a single "flat" HTML file is sent to the client. With ASP, the server also takes the client request, but adds an interpretive layer, making it possible for the Web master to deliver dynamic, customizable information to the individual client. In this issue, we take a look at a couple of books devoted to ASP.

#### ASP in a Nutshell

Author: A. Peter Hinchey  
Publisher: O'Reilly Associates  
Pp. 335/000 978-0-596-00000-0  
ISBN: 1-56592-130-1  
Software: CD-ROM  
Price: \$24.95

#### Rating:

Information content: \*\*\*  
Usability: \*\*\*  
Interest for Intermediate/Expert:  
Overall rating: \*\*\*

O'Reilly books are always easy to spot on the bookstore shelves because of their consistent design—each cover is adorned with a black and white image of a different animal. For this book, the animal is, aptly as you may think, a nutcracker. As a result, the book's cover is a little more festive than most. The book is a good reference guide that will help both the beginner and more experienced ASP Web developers.

This book is divided into three major sections: an introduction that looks at ASP from a historical perspective, a section that looks at how to use ASP to create Web pages, and a section that looks at how to use ASP to create Web applications. The book is a good reference guide that will help both the beginner and more experienced ASP Web developers.

The introductory section is a good, though not too long, overview of ASP. It is a good reference guide that will help both the beginner and more experienced ASP Web developers.

The majority of the book is based on the ASP 1.0 specification. It is a good reference guide that will help both the beginner and more experienced ASP Web developers.



at least one. The book contains a lot of information about ASP and its use, and it is a good reference guide that will help both the beginner and more experienced ASP Web developers.

ASP is a good reference guide that will help both the beginner and more experienced ASP Web developers.

ASP is a good reference guide that will help both the beginner and more experienced ASP Web developers.

#### Beginning Active Server Pages 2.0

Authors: Eric Francis, Jeff Hoffman, Jan T. Ode, David S. Sussman, and Chris O'Neil  
Publisher: Wrox Press  
Pp. 400/000 978-1-56592-130-1  
ISBN: 1-56592-130-1  
Software: CD-ROM  
Price: \$24.95

#### Rating:

Information content: \*\*\*  
Usability: \*\*\*  
Interest for Intermediate/Expert:  
Overall rating: \*\*\*

Wrox Press books that are not expensive can simply help you learn programming concepts without any extra information. Beginning Active Server Pages 2.0 is a good reference guide that will help both the beginner and more experienced ASP Web developers.

This is a good guide, if you are looking for a relatively easy, step-by-step approach to learning ASP. It doesn't contain the entire ASP 2.0 specification, but it does contain a lot of information about ASP and its use, and it is a good reference guide that will help both the beginner and more experienced ASP Web developers.

object-oriented programming. This chapter is particularly good and provides a clear and easy-to-understand example of how object-oriented programming works. Further chapters also include a tour of the various ASP methods and describe how to build progressively more complicated ASP applications.



Beginning Active Server Pages 2.0 does a good job of explaining the various concepts of ASP and its use, and it is a good reference guide that will help both the beginner and more experienced ASP Web developers.

The authors covered in this book are very experienced, which is perfect if you have some programming knowledge, but may be a little bit out of the box for those with no experience.

On the whole, Beginning Active Server Pages 2.0 is a good reference guide for the ASP Web developer.

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# Disney keeps Macs in mind

## New Toy Story 2 game, activity titles PC and Mac compatible

Just in time for the launch of the DisneyPixar animated film, Toy Story 2, Disney Interactive has released two new Toy Story software titles. Toy Story 2 Activity Games and Toy Story 2 Action Game.



Activity Games bundles together several games and strategy games with projects designed for children from 5 to 10 years of age. Players can create their own 'belongings' menu book using images and words of their choice.

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Disney Interactive describes Action Games, which is for children eight years of age and older, as a fast-paced adventure in a high-resolution, 3D environment. In it, players help Buzz Lightyear rescue his fellow Challengers include flying laser weapons at enemy bots, using rocket jet boots to skate at high speeds, using spring-loaded boots to reach high places, and a variety of other adventures. Action Games has 10 levels of play and five 'insane' battles,' according to Disney.

Happy, both titles are available for the latest platforms but should due to the fact that 'Toy Story was created by Pixar, whose characters and staff members in Apple have been hired.' The Windows/Mac hybrid CD-ROMs are \$49.99 each.

On a PC, Action Games requires a minimum of Windows 95, 16 MB RAM to function properly, 51 MB RAM, 60 MB free hard disk space, a CD-ROM drive, DirectX-compatible 4 MB video card, DirectX-compatible sound card, support for Windows-compatible peripherals, support for DirectX and Glide-compatible 3D cards. For the Mac, it needs a minimum of a 233 MHz G3 processor, 16 MB RAM, 31 MB RAM, 60 MB free hard disk space, and a 4x CD-ROM drive.

Activity Games requires a PC with a minimum 133 MHz Pentium CPU, Windows 95, 16 MB RAM, 50 MB free hard disk space, a 4x CD-ROM drive and 16-bit DirectX compatible video and sound cards. For the Mac, it requires a system with a 233 MHz Power PC processor, System 7.5, 31 MB RAM, 50 MB free hard disk space, and a 4x CD-ROM drive.

And if you can't get enough Disney... Though not Mac compatible, Disney has written the first official computer game of the Toy Story universe of the year. Who Wins Is It a Billboard? Like the TV show, players must answer a series of 15 questions posed by host Buzz Phillips. Disney says the number of people who can play at one time is only limited by the space available around your computer. The Who Wins Is It a Millionaire CD-ROM was designed by the makers of Who Wins. It now has a popular CD-ROM based cross game.

The best news is that you won't need an online playing this game. The good news is that only have to link out \$11.99 to buy it. Info:

Where to find a Macintosh requires a minimum of a 133 MHz G3 processor, 16 MB RAM, 51 MB free hard disk space, a 4x

CD-ROM drive, and 16-bit DirectX-compatible video and sound cards. Info: [www.disney.com](http://www.disney.com)

—Megan Johnson

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# Tech shock

## Y2K is upon us and I have no idea what's going to happen

I rarely watch TV, but I did find myself to sit down on Nov. 30 to watch the usual hot TV movie Y2K. I regarded it as a loose work, in the sense that this was the only significant year 2000 (Y2K) drama that was going to be released before the year 2000 actually happened. Apparently, most producers figured that any Y2K drama anyone would only be of interest, mostly right before the millenium in 2000, and would be of no interest at all afterwards. Most missed the chance to make feature films with such a ripe "time before" theme.



THE LAST Y2K

I thought the Y2K movie was a loose production, and it necessarily oversimplified and dumbed down a very complex issue. In particular, it quickly focused on a U.S.-centric view and focused on one big technical disaster (a breakdown at a U.S. nuclear plant), pretty much ignoring every other possible consequence of Y2K. The movie also skirted about those issues like 2000 local time, which didn't provide much insight as to possible longer-term consequences of the Y2K problem.

### Meltdown material

The old Y2K issue, mainly technical, translates into "everything affecting everything else" and the resulting impact to Y2K.

According to reports before the US Senate in October (<http://www.senate.gov/committees/101-2000>), expert witnesses on Y2K showed that the speaker before believed in emotional, media and entertainment coverage as less likely to occur than a more complex phenomenon, the decline of economies are as expected period due to the "long" imposed by more technically oriented Y2K failures.

As Bruce McConnell of the International Y2K Cooperation Center put it, "In many, the most significant risk Y2K poses is not localized technology failure, but a degradation in the performance of the connected relationships among electronic, mechanical, people, and systems that together make modern life workable and efficient."

I think the global systems approach to Y2K may give us a better view of what's going to happen come the new year. To sit simply I think that out of worst case, that again as in New Year's Eve could be big and very messy, even if it isn't the best of scenarios that the hot happy new year and end-of-the-worlders are producing. I think the worst will be significant globally, and possibly have effects that last for months.

With Y2K's effects as catastrophic as, severe, devastating, widely spreading, or even I hope I'm wrong, but I think in worst scenarios it will again seriously affect people's daily work and home lives. If we think many of the individuals can be found quickly and collectively will be to more than a big day down, I can only hope some parts of the world, and the global economy generally, would take a significant hit.

Based on several aspects of the worst scenarios—major plant shutdowns, nuclear weapon malfunctions, power grid and telecommunications, mass social business breakdowns—I would be surprised if our tech or computers don't take a considerable hit.

### Locations, locations, locations

How Y2K really affects you or me will depend to a large degree on

where we live. In Canada, we're one of the most advanced, and most computer dependent, nations on earth. As another recent Y2K presentation report pointed out, Canada is therefore, theoretically highly vulnerable to Y2K disruptions.

However, as a result of spending tens of billions of dollars to address the problem in the last three years, Canada is one of the most Y2K ready countries in the world. Nevertheless, if anything goes wrong, it will go wrong at the worst possible time—in the middle of the Canadian winter.

In terms of the global energy mix, Canada supplies the bulk and other financial incentives, are highly Y2K ready. Not too far behind are the government agencies, public utilities, and private 1,500 companies that have generally done a pretty thorough job preparing for Y2K, and which now claim they will only face minor annual costs related to the Y2K problem.

At the local level, however, Canada used to maintain houses, which represent the bulk of employment and new economic growth in Canada, are mostly Y2K-unready. In a given many cases, companies and individuals have decided, either deliberately or by simply avoiding the issue, to "bet by failure." Many of us will simply wait it out and see what stops working after New Year's Eve, and then try to get someone to fix it.

According to Al Aubrey, IBM Canada's head of Y2K preparations, one of the most vulnerable parts of the infrastructure is the HVAC (heating, ventilation, or conditioning) capacity. Many modern buildings rely going dead the winter if they computerized temperature control, pumps, fans, transformers, alarms, power regulation and other equipment has not been completely checked and made Y2K good.

### Things globally...

Outside the US or even industrialized countries, government agencies, and banks for Y2K readiness, have generally been grossly insufficient. We may not see by before the whole country where government and infrastructure Y2K readiness is at the worst day low level of Canadian small business. A U.S. government advisory to pull diplomatic staff out of former East bloc countries is an indication of the high probability of trouble in that region.

### ... Act locally

If Y2K does not hit you or your business line of new systems, along the lines of other and of the small panic, get it. It's the first in a long list of new scenarios now. However, just because I've been in the following presentation before Dec. 31.

• Checked and updated the BIOS on the family hardware: mass PC in 1998 Dell desktop)

- Tested up all the hardware data on the hard drive on the micro-plots and CD-ROMs.
- Downloaded the Microsoft Y2K update software, checked and fixed all the critical business-related functions, spreadsheets and word processed files.
- Tested out of power down for three or four days of time, our extended family has made arrangements for "winter camping" in our houses for at least a few days.

However Y2K turns out I've had my own tech shock by degrees over the last three years. I have developed a very detailed attitude towards my reliance on computer technology, which won't go away, no matter how the next 30 days go. Ironically, I'm writing this while at a conference room in Toronto, which has been doing about a half dozen of the status for the last hour, due to a power failure in the truck again. I've been trapped in a car, with my notebook's batteries running down, watching the computer's clock as it becomes increasingly late for a meeting with Microsoft and Microsoft Product.

Fault in technology? Not so. But the one, little while at least, I'm going to be a true believer in Murphy's law: "If a thing can go wrong, it will—and at the worst possible time."

Happy new year '02



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